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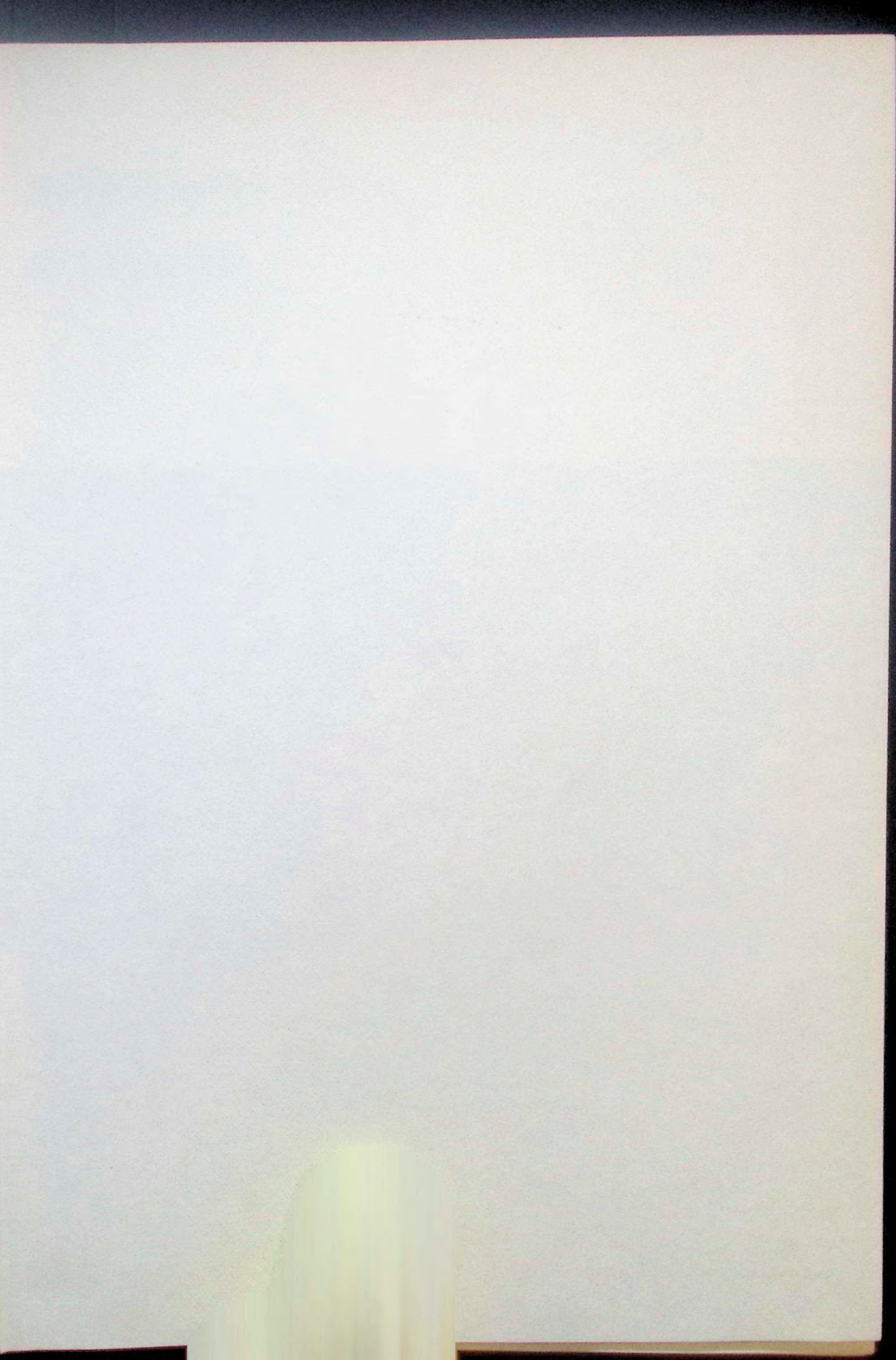
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Foreword

On August 24–27, 1964, at the National Museum of Canada, Ottawa, the Ethnology Division sponsored a Conference on Algonquian Linguistics. It is believed that this was the first time in history a conference had been devoted entirely to one family of American Indian languages. The Conference was attended by twelve linguists, very nearly the total for all of North America, who are actively engaged in research on Algonquian linguistics. Participants discussed current research needs and priorities, and ways and means to facilitate publication of manuscripts. This special issue in the National Museum of Canada's Bulletin Series is the first tangible result of the Conference. Most of the papers were read and discussed during the sessions. The rest were the result of the stimulating discussions at the Conference and were submitted later.

A. D. DeBlois
Chief, Ethnology Division



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Résumé

Les deux premières communications de ce volume: «*Genetic Classification in Algonquian*» et «*Notes on the Genetic Classification of the Algonquian Languages*» traitent de certaines questions théoriques et méthodologiques concernant la classification génétique et les sous-genres établis dans la famille linguistique de l'algonquin, ainsi que des affinités plus lointaines existant entre l'algonquin et d'autres familles linguistiques. «*The Original Home of the Proto-Algonquian People*» réunit toutes les données disponibles sur la terminologie employée par les usagers des langues algonquines en matière de flore et de faune. Ces travaux ont pour objet de déterminer le lieu d'origine de leurs ancêtres et l'on espère que la conclusion à laquelle on sera arrivé présentera autant d'intérêt que d'utilité pour les préhistoriens et les archéologues. La communication intitulée «*Discrepant Consonant Clusters Ending in *-k in Proto-Algonquian*» renferme certaines hypothèses au sujet de ce problème. «*The Proto-Algonkian Word for Sun*» collationne les données actuellement disponibles parmi toutes les ramifications de la famille algonquine, en vue de présenter une nouvelle reconstruction et de discuter les problèmes de correspondance non résolus jusqu'ici. «*The Algonquian Independent Indicative*» traite à fond de la variété inexpliquée des terminaisons-pluriel du sujet pronominal et de l'inflexion des TA et TI ojibway. «*Historical Notes on New England Languages*» présente une étude des sources ethno-historiques, linguistiques et d'autre nature actuellement disponibles pour établir les principales limites des langues et dialectes de l'ouest et du centre de la Nouvelle-Angleterre. «*Some Observations on a Comparative Arapaho-Atsina Lexicon*» présente un lexique arapaho-atsina de 261 articles fournissant des données pour la formulation de plusieurs déclarations historiques dans la phonologie comparative algonquine. «*Some Aspects of Arapaho Morphology*» traite de l'inflexion des noms arapaho en s'attachant particulièrement aux morphophonèmes complexes de l'obviation et de la pluralisation. «*On the Inflection of Transitive Animate Verbs in Arapaho*» constitue un apport succinct à une meilleure intelligence de cet aspect particulièrement complexe de la grammaire algonquine. «*Blackfoot Paradigms and Matrices*» illustre une analyse des paradigmes les plus complexes et les plus problématiques du dialecte des Pieds-Noirs par la voie de la technique de la matrice. «*Initial Change in Blackfoot*» fournit une brève description des caractéristiques du «changement initial» dans le dialecte Pied-Noir et traite des divers points sur lesquels il diffère de son équivalent dans d'autres langues algonquines. «*Preliminary Report on Malecite-Passamaquoddy*» fournit le tableau des phonèmes du Malecite-Passamaquoddy et présente un texte assez bref donnant lieu à quelques observations grammaticales.

GENETIC CLASSIFICATION IN ALGONQUIAN

BY KARL V. TEETER*

Inasmuch as no other paper at this First Conference on Algonquian Linguistics has concerned itself with giving an overall summary of basic agreements on the relationship of the Algonquian languages, I make such a statement the pivotal point of the present paper and follow it with some notions and cautions on where we should go from here.

First, however, it may not be supererogatory to make a few remarks on the nature and theoretical basis of linguistic classification, and of genetic classification in particular, even though such a discussion is only indirectly related to Algonquian. And perhaps its relation to Algonquian studies is not so indirect after all, if one accepts (as I do) Goddard's claim¹ of a widespread failure among linguists to recognize the basis of Michelson's early classification.²

Among a large number of criteria according to which languages might be classified, three have been found generally fruitful: classification according to type, proximity, and common descent.³ The latter two both imply historical connection, and classification by common descent, genetic classification, requires that connections due merely to proximity, borrowings, be distinguishable from genetic connections. There is only one basis upon which such a distinction may be made, and that is a reconstruction of the actual history of the languages involved.

Genetic classification, then, can only be done on the basis of a historical hypothesis, whose terms must be structured enough to preclude borrowings. On the other hand, the hypothesis must be specific enough to prevent chance resemblances from biasing the picture and to exclude, as well, common factors which are universal, features shared by all languages or all languages of a given type. We are then left, in cases where we can do genetic classification at all, with a very special sort of set of resemblances, those which can only be explained by postulating common origin, to which we give the name 'correspondences.'

The basic methodological tool of historical reconstruction is of course comparison of linguistic systems, and the comparative method has been neatly described as "the process by which similarities are converted into correspondences."⁴ The essential point is that the conversion is not a mechanical process, any more than, say, the conversion by structural hypothesis of sounds into phonemes: one cannot speak of correspondences until one has contracted to construct a system within which these will have meaning, and external similarity is not to the point except incidentally, as a way into the data. Thus, Allan Taylor's valuable Arapaho-Atsina list,⁵ as he himself has pointed out, is not a demonstration of correspondences but a list of similarities. Some of these will turn out after more structured argument to be correspondences, some will not.

The nature of linguistic correspondences does not need belabouring in front of this audience. It is nevertheless worth emphasizing in the present connection

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since Algonquianists and Americanists have seldom yet pursued comparisons to the point of history,⁶ perhaps in part as the result of a Boasian skepticism as to the possibility of real history, and in part because of a mistrust of the reality of abstract language systems. Progress in the genetic classification of Algonquian now requires the mitigation of such attitudes.

Genetic classification presupposes linked correspondences, and correspondences are based on history. Now history is nothing less than the story of how things really happened,⁷ in so far as happenings have had effects describable in terms of the phenomena of which we are writing the history. For linguistic history, to paraphrase Meillet, the proof is not secure until we have confronted system with system and shown how it is possible to pass from one to the other.⁸

This is the problem with Hockett's PCA hypothesis.⁹ PCA is not intended, as Hockett has made clear in various discussions, as a historical reality; its use is technical rather than substantive. That is to say, the recommendation that we should speak of PCA rather than PA was the result of a caution based on a technical judgment that our information was insufficient;¹⁰ it did not necessarily imply the substantive postulation of a unified and separable historical subgroup consisting of Bloomfield's four Central languages and perhaps some others. Now to use a phrase such as Proto-Central Algonquian in this way is not a usage to which we can object on principle. But if, as I wish to maintain, our technical statements about a subject matter must be kept separate from substantive statements, which assert truths about the internal organization of the data, then we must recognize that Hockett's recommendation amounts to a proposal for a terminological innovation. We may speak of PCA, but if we do so, clarity demands that we adopt a different style for PA, PEA, and PIE, in which only positive facts count.

Actually, it is very difficult to avoid entirely the suggestion of a new concept when we coin a new name, and I should much rather express our ignorance in a given case by a marked absence of a term than by inventing a new one. And since this is already done for us by judicious use of the traditional family tree diagram, I do not see why we need to go further. My summary below utilizes such a family tree diagram, interpreted and justified in a manner I now explain.

The constant objection (reflected in virtually every linguistics textbook familiar to me) to the use of family tree diagrams is that they do not accurately reflect history. If this means that they are no substitute for discursive presentation of a multitude of details which go to make up linguistic systems, it may be replied that this is true of every diagram. Diagrammatic presentation is a convenience and not a necessity, and one may build as much into diagrams as one wishes, though there comes a point when cluttering of diagrams defeats the original purpose of clarification.¹¹ If the objection to family tree diagrams is that the facts they represent are not basic, or that they imply sharp splits which are contrary to fact, and so on, I simply disagree.

The diagrams, in the first place, are used as illustrations against a backdrop of both a general theory as to how languages develop and change, and a history of a particular family, and they imply nothing more than is given in the theory and history. Since splits are not sharp, family tree diagrams, however drawn, do not imply that they are, but simply represent the fact (or assumption) that languages do diverge and split and that the tracing of a continuous linguistic tradition therefore always shows branchings in it. In the second place, this and

the order of branchings within a continuous tradition are what family tree diagrams show, and these simply are the main facts given in a genetic classification based, as always and necessarily, on detailed historical reconstruction. There is no biological metaphor, nor any metaphor at all.

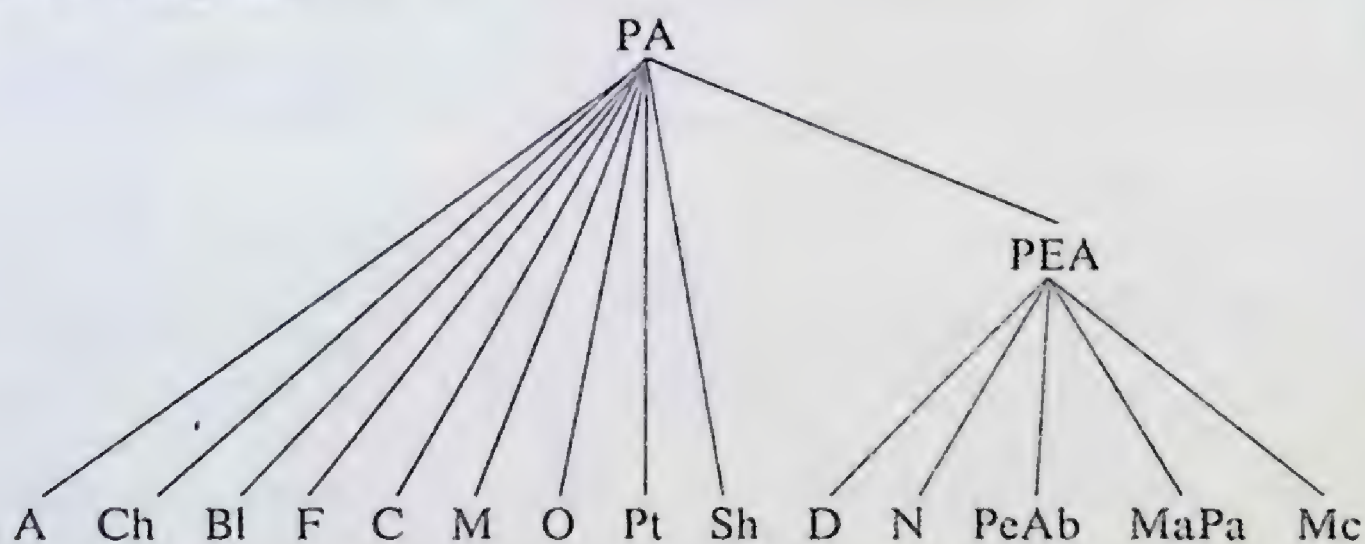
In such a family tree diagram, the absence of information as to internal relationship or subgrouping is represented by the absence of a node to which a possible subgroup can be traced back. As usual in historical linguistics, a diagram says only that "thus far we can go and no farther."¹² It represents only positive facts about relationships and has nothing whatsoever to say about what is *not* related, or about further degrees or possible crisscrossings of relationship.

Against this perhaps rather tedious background, let me turn to an assessment of where we are in Algonquian genetic classification. With all of our arguments we all believe, I think, that there is an Algonquian language family consisting of just those languages we have been discussing—perhaps more which are extinct (e.g., Beothuk)—and less likely others whose membership in the family at the same level is unrecognized. This proposition may be summarized by a list of the languages, for example:

A Ch Bl F C M O Pt Sh D N PeAb MaPa Mc¹³

This is equivalent to recognizing that there is a historical continuum which has two ends: one, the language from which all these are descended, Proto-Algonquian (PA); the other, the list just given. The conventional way of recognizing this is to draw a tree with fourteen branches which will connect the two ends. This is the minimum.

We may also proceed on the basis of Goddard's work, reported here and elsewhere,¹⁴ which demonstrates several important shared Eastern innovations, that the last five branches stem from a single intermediate stage, Proto-Eastern Algonquian (PEA). And I believe that this is as far as we can presently go in demonstrated historical realities which are post-PA. We thus arrive at the following family tree:



Naturally, this is only a skeleton, and there is important work remaining to be done in fleshing it out. As it stands, it also does not preclude the existence of further subgroups, by the argument made above. It nevertheless is, and remains, our basic frame of reference.

But we know more, of course, about Algonquian. We know that there are wider relationships, and none that we know about are closer, or better supported *prima facie*, than that of Wiyot and Yurok in California, thanks to the work of

Sapir and Haas.¹⁵ Although 'nots' in linguistic history can never be demonstrated directly, it is strongly suspected—known less securely—that Wiyot and Yurok are not Algonquian, thanks to Michelson. If this is so (and again, maximal heuristic usefulness dictates in any case that our diagrams be conservative), they are coordinate with PA, either individually or together.¹⁶ We then have a pre-PA stage which, in agreement with Goddard's proposal, may be called Algic.¹⁷ This, I think, is as far as our knowledge goes.

But what, then, of the many exciting relationships on a still deeper level which have been proposed over the past few years?¹⁸ It has already been asserted at some length that the only way of proving hypotheses of relationship is by doing detailed history of linguistic systems, which then converts tantalizing similarities to solid correspondences. But there is a special problem for proposed deeper relationships for Algonquian,¹⁹ which leads to a dilemma. One must start from what is known, not from what is unknown; for what is unknown has no bounds. There are two directions in which one can go from what is known in genetic classification in linguistics, either outward to wider relationships or inward to making narrower ones more precisely understood. Now these directions are not independent, for we must confront system with system to work out history, and an unattested system earlier in time can only be specified so far as we have worked out the details of its development as revealed in attested systems.

And so we are confronted with a regress from hypothesis to hypothesis, each based on less evidence, since most of the history here is yet to be written. This seems to me to lead to the conclusion that *any* hypothesis involving connections earlier than the Algic level, given our standards for proof of historical connection, is inherently unprovable until we know Proto-Algic (Pac) better. This does not mean that we should refrain from making such hypotheses, any more than some of my earlier caveats mean that any of us should refrain from using whatever evidence may be at hand, but only that none of us are pioneers in a wilderness.

There emerges, then, a list of three vital directions in which Algonquianists should move in bettering genetic classification in the field:

- (1) inward, toward examining the possibilities for further subgrouping. The works of Hockett and Siebert reported in this volume make extremely important suggestions in this direction.
- (2) sideways, as might be said, toward the task of establishing the relationships.²⁰ This is most important of all and includes factoring out borrowings. We may find that the many special similarities between Central languages which have been one motive for thinking of a Central subgroup are the result of contact. We have surely reached the stage of feasibility for studies fine-meshed enough to connect with synchronic dialect work, as recommended by Hockett, and even for genealogical work such as Day's. In all this, we must concentrate on going beyond the present stage of showing *that* the languages developed from Pac are related to showing *how* they developed, in detail.
- (3) outward, toward discovering and proving wider relationships. Successful execution of this task will depend on attention to the first two, as previously claimed. Here Haas's work presents a challenge to us all, which must not be rejected.

Premature agreement on details is counter to the spirit of science. But I think it may be stressed that our discussions do lead to consensus on a basic frame of reference, and that is a primary purpose of conferences such as this one.

NOTES

- ¹ R. H. Ives Goddard III. Notes on the genetic classification of the Algonquian languages, this volume.
- ² Truman Michelson. Preliminary report on the linguistic classification of Algonquian tribes, Bureau of American Ethnology 28th Annual Report, 1906-7 (Washington, 1912), p. 221-290b.
- ³ These various classifications are characterized briefly but with exceptional clarity by Dell Hymes in the Introduction to Part IX of Dell Hymes, *ed.*, *Language in culture and society* (New York, 1964).
- ⁴ The description is that of Paul Thieme, in lectures.
- ⁵ Allan R. Taylor. Some significant phonological differences between two Arapaho dialects, this volume.
- ⁶ This is even true for Leonard Bloomfield, who quite often resisted the temptation of trying to explain possibly corresponding sets which did not readily fit together.
- ⁷ In the famous phrase of the Prussian historian Leopold von Ranke, "wie es eigentlich gewesen."
- ⁸ «La démonstration n'est définitivement acquise que lorsqu'on a confronté système morphologique à système morphologique et qu'on a vu comment il est possible de passer de système initial aux systèmes ultérieurs.» Antoine Meillet, *La méthode comparative en linguistique historique* (Oslo, 1925), p. 29.
- ⁹ See the discussion of this by Goddard, in the paper cited in fn. 1.
- ¹⁰ "A parent language reconstructed from the comparison of a certain set of daughter languages can be regarded as the parent only of the languages so used." (p. 131). Charles F. Hockett, "Implications of Bloomfield's Algonquian studies," *Language* 24, p. 117-131 (1948).
- ¹¹ A recent article by Franklin C. Southworth, "Family-tree diagrams," *Language* 40, p. 557-565 (1964), conspicuously demonstrates this sort of irrelevant cluttering of family tree diagrams past the point of usefulness. Here the writer attempts to combine in single diagrams the history of individual items (as efficiently represented in *Wellentheorie*) with that of language systems as represented in family trees, with predictably odd results; for there is no reason at all for these to match, and in the examples he gives they don't.
- ¹² Edward Sapir, *Language* (New York, 1921), p. 164.
- ¹³ These abbreviations stand, from left to right, for Arapaho, Cheyenne, Blackfoot, Fox, Cree, Menomini, Ojibwa, Potawatomi, Shawnee, Delaware, Natick-Narragansett, Penobscot-Abnaki, Malecite-Passamaquoddy, and Micmac. I do not wish to insist upon just these abbreviations, which have something of a precedent in style in those used for California Penutian languages in Harvey Pitkin and William Shipley, "A comparative survey of California Penutian," *International Journal of American Linguistics* 24, p. 174-188 (1958). Nevertheless, it would certainly be helpful if Algonquianists could agree on relatively uniform reference.
- ¹⁴ See Goddard's paper, "The Eastern Algonquian intrusive nasal," forthcoming in *International Journal of American Linguistics*.
- ¹⁵ See Mary R. Haas, "Algonkian-Ritwan: the end of a controversy," *International Journal of American Linguistics* 24, p. 159-73 (1958), for both a presentation of evidence and references to the work of Sapir and Michelson bearing on the problem.
- ¹⁶ Current evidence does not answer the question of whether they are closer to each other than either is to PA. A great deal remains to be done here, with a very modest and inconclusive beginning for Wiyot (W) and Yurok (Y) in Karl V. Teeter, "Wiyot and Yurok: a preliminary study," William Bright, *ed.*, *Studies in Californian Linguistics*, University of California Publications in Linguistics, vol. 34, p. 192-198.
- ¹⁷ This term was first used for Algonquian proper, as then known, by Henry Rowe Schoolcraft—see the introduction to his *Algic Researches* (New York, 1839), where he refers to it as coined from the terms 'Alleghany' and 'Atlantic,' though later in *Archives of aboriginal knowledge* III, p. 524 (Philadelphia, 1860) he says it is "derived from the word Algonquin." The term has recently been used interchangeably, so far as I can determine, to refer to either Algonquian proper or Algonkin-Ritwan, by Jean-Paul Vinay in «Classification de la famille linguistique Algonquin-Ritwan», *Anthropologica* 1, p. 103-118 (1955). Vinay's term «algique» may well have precedence I have not yet discovered among Americanists writing in French. I should welcome suggestions as to a more euphonious term for the wider group—we do, however, need one.

- ¹⁸ For example, Mary R. Haas, "A new linguistic relationship in North America: Algonkian and the Gulf languages," *Southwestern Journal of Anthropology* 14, p. 231-264 (1958).
- ¹⁹ This problem is particularly tangled since, according to Haas's usually reliable impressions, the level of wider relationships may involve not only Gulf, but even Hokan, Siouan, and so on. This means that a great deal more than further work on Algie alone will be required to sort things out, and Algie, at least Algonquian, is further advanced than most areas in the work which has been done.
- ²⁰ This term is taken from Dell H. Hymes, "Genetic classification: retrospect and prospect," *Anthropological linguistics* 1.2, p. 50-66 (1959).

NOTES ON THE GENETIC CLASSIFICATION OF THE ALGONQUIAN LANGUAGES

BY IVES GODDARD*

Although the kinship of the Algonquian languages has been recognized since the first knowledge of the various branches, subgroupings and classifications within the family have remained controversial to the present day. The first serious attempt to group these languages was that of Michelson in his "Preliminary Report on the Linguistic Classification of the Algonquian Tribes," which appeared in 1912 in the Bureau of American Ethnology's Annual Report for 1907.

Out of the whole of this stimulating and still relevant paper only the first sentence seems to be remembered today: "The Algonquian tribes linguistically fall into four major divisions, namely: Blackfoot, Cheyenne, Arapaho, and Eastern-Central."¹ This statement has been widely accepted as delimiting the primary genetic subgroups of Algonquian, in spite of the fact that nowhere does Michelson state that this preliminary classification is genetic. In fact, it is clear from the way he discusses the similarities of the various languages that his approach was rather dialectological and typological. His criteria are stated in these words: "The linguistic classification of Algonquian tribes in the present paper is based essentially on the occurrence of consonantic clusters and a few other phonetic phenomena, and on the pronominal forms of the verb."² However, since the historical developments of the verbal paradigms had not been worked out, Michelson could only point out superficial similarities in the various verbal endings. He had no way of distinguishing between accidental likenesses, shared innovations, and shared retentions. Since the phonological history of the languages was unknown, he often failed to note the original identity of forms that were superficially dissimilar. There is every reason to believe that he intended this paper to serve as a preliminary survey of data that might contribute to more detailed knowledge of the type mentioned. Already in this early paper there are hints of the opinion that was to emerge more clearly from his 1935 IJAL article, "Phonetic Shifts in Algonquian Languages,"³ that the divergence of the Plains languages was a matter of recent innovation, largely phonological, and did not point to a protolanguage more archaic than that underlying the Central and Eastern languages.

Bloomfield, in his 1925 paper "On the Sound System of Central Algonquian,"⁴ repeats Michelson's classification, and it is to be noted that he uses the term 'Central' in Michelson's sense, which includes Delaware and Natick. He called the protolanguage he reconstructed 'Primitive Central Alonquian,' although he used evidence only from Fox, Cree, Menomini, and Ojibwa. By 1940 or so the work of Michelson, especially in Cheyenne and Arapaho, of Voegelin in Delaware, and of Siebert in Penobscot seems to have emboldened Bloomfield to the hypothesis put forward in the Sketch that the reconstructions based on the four best-known languages "will, in the main, fit all the languages and can

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accordingly be viewed as Proto-Algonquian."⁵ This may be called the PA hypothesis. (It should be noted in passing that in the Sketch Bloomfield silently reclassified Natick-Narragansett as an Eastern language.) Hockett objected to this hypothesis at least as early as his 1942 paper, "On the Position of Potawatomi in Central Algonquian,"⁶ contending that Bloomfield's protolanguage ought to be called Proto Central Algonquian since the other languages had not yet been completely considered. This may be referred to as the PCA hypothesis. On the other hand, Voegelin in the Sapir Memorial Volume⁷ and Siebert in his 1940 review of Father Pacifique's Micmac grammar⁸ both pointed out that there was no evidence for a sharp dividing line between a Central and an Eastern group.

Now it is admittedly true that the PA hypothesis has not been proven. It should be emphasized, however, that the PCA hypothesis is not neutral but in fact makes claims about the nature of the relationship of the Eastern and Plains languages to the rest of the family. This hypothesis in effect states that the Eastern and Plains languages are related to the Central languages on a deeper time level than that on which the Central languages are related among themselves. It is clear that such a hypothesis has not been proven either. Being therefore faced with a choice between two unproven hypotheses, it seems reasonable to choose the one for which the most evidence is available, the one which promises to be the most productive, the one which was the hypothesis of the two greatest scholars in the field (Bloomfield and Michelson), namely, the PA hypothesis. Certainly this is the hypothesis to be tested, and until such time as it is proved wrong there would seem to be no reason for abandoning it.

The evidence presented in my paper "The Algonquian Independent Indicative"⁹ indicates that the paradigm in question ancestral to that of the Eastern languages can be reconstructed on the basis of Central Algonquian evidence alone; the reverse would not be the case. This evidence for the PA hypothesis merely adds to that already marshalled by Michelson, Voegelin, and Siebert. The Arapaho and Atsina data cited by Taylor¹⁰ also favour the PA rather than the PCA hypothesis. The number of problematical words does not seem to appreciably exceed the number found in some of the Central and Eastern languages, though more work is certainly needed in this area. Such is the evidence which favours the PA hypothesis. It remains to consider the evidence which has been cited as showing that PCA reflects a more recent and innovating level vis-à-vis PA. This has taken the form of proposed archaisms in the Eastern and Plains languages and corresponding alleged shared innovations in Central Algonquian.

One feature which seems to have a certain status in this regard is the distinction between PA **θk* and **xk*, which cannot be reconstructed on the basis of the central languages but requires reference to Eastern Algonquian or Arapaho.¹¹ Both clusters give *sk* in Cree and *hk* in other Central languages, but **θk* gives, for example, Natick *sk*, while **xk* gives Natick *hk*. The first thing to be noticed is the difficulty of setting up a plausible phonological development whereby the two clusters would fall together to something that could give *sk* in Cree and *hk* in the other Central languages. Considering the Eastern reflexes it would seem much more likely that **xk* and **θk* fell together in one direction in Cree (to *sk*) and in the other direction in Fox, and others (to *hk*). But there are more serious objections to taking this as criterial for the Central grouping. In the first place the choice of the pair of clusters is arbitrary. If we chose, say, **hk* and

**xk*, we could separate Cree, Arapaho, and Delaware from all the other languages. If we chose **šk* and **θk*, we could group Cree, Arapaho, and most of Eastern Algonquian against the rest. Also, the clusters are precisely the most volatile area of Algonquian phonology—all languages greatly reduce the number of contrasts. The loss of a phonetic contrast in the least stable area of the phonology among aboriginally contiguous languages can hardly be significant for setting up major subgroups. For this the demonstration of shared innovations of a certain degree of uniqueness and complexity is required. Morphological innovations of the kind I have cited as criterial for an Eastern Algonquian group¹² are most apt to be convincing in this respect.

Some other possible Eastern Algonquian archaisms deserve to be mentioned. Haas has suggested that the Central Algonquian word for 'squirrel' (Fox *anikwa*, and so on) may be less archaic than the Oklahoma Delaware form *xáni·kw*.¹³ But Brinton and Anthony give Delaware *anicus* (diminutive),¹⁴ and, in fact, *xáni·kw*, far from showing a general archaic trait in Eastern Algonquian, is found only in modern Oklahoma Delaware. The origin of the initial *x-* is evident from comparison with Narragansett *mishánnēke-quock* 'squirrel(s)',¹⁵ Ojibwa *missanik* 'black squirrel',¹⁶ and so on, which reflect **meʔθanyikwa* 'big **anyikwa*.' (Compare Delaware *macheli~mecheli~cheli* 'much'.¹⁷ Note also that Arapaho *hóniʔ* 'prairie dog' has no trace of an initial **x*, the *h-* being automatically added before initial vowels.

Similarly, the Delaware word for 'one' *kwáti*¹⁸ has been considered archaic in its lack of initial *n-*,¹⁹ but Brinton and Anthony's form '*ngutti*' shows the loss of *n-* to be recent (note the alternation between *nguttapachki* and *guttapachki* 'one hundred').²⁰

In a paper on "The Eastern Algonquian Intrusive Nasal,"^{20a} I have shown that the nasalized /ã/ found in Natick-Narragansett and Abnaki is the regular reflex of PA **a·*, as Michelson and Geary long ago deduced. It is not an archaism²¹ but a recent innovation of pronunciation which spread over a certain restricted area, apparently after the dialects in question had become substantially differentiated. (Note its presence in Abnaki, and its absence in Penobscot.)

The non-alternation of *l* from PA **θ*²² in Delaware, Abnaki, Penobscot, and Passamaquoddy-Malecite might be proposed as an archaism, but the fact that Natick (in which **θ* and *l* have become *n*) preserves the alternation shows that Delaware and the northern tier of Eastern languages have merely innovated independently by generalizing the non-alternation of *l* from PA **l* as in the common stems **neʔl-* 'kill' and **mi·l-* 'give to.' For Natick note *pogkenau* 'he casts (her) off' but *tohwhutch pogkésean* 'why dost thou cast me off?'²³ from **pakiθe·wa*, as in Fox *pakine·wa* (*pakišite* 'if he casts me away, divorces me').²⁴

Siebert has suggested the possibility that the dual/plural distinction found in the AI and psAI verb in Abnaki, Penobscot, Passamaquoddy-Malecite, and Micmac, and in the Micmac TI, may be archaic.²⁵ Michelson, on the other hand, thought it was a secondary innovation of these languages,²⁶ and a good case can be made in support of this. Where the contrast is found, the dual corresponds to the plural of the other languages, and the plural is formed by means of a set of endings that involve the element *-*etwi-*, generally used to form the reciprocal. Since the use of this element as a reciprocal is preserved in these languages, it could not be used to form TA plurals without creating ambiguity.

The use of the element **-etwi-* with AI verbs (joined by the TA finals **-h* or **-θ*,²⁷ since **-etwi* can be added only to TA stems) in various marked plural significations is found outside the languages which have the dual/plural contrast. Bloomfield mentions a collective meaning in Menomini;²⁸ the Eastern Ojibwa forms *a·kkuškate·* 'he has a stomach-ache' and *a·kkuškate·?etiwak* 'they have stomach-aches' point to a distributive meaning, 'they each have a stomach-ache'; Faries gives the Cree forms *kakwe·čiskasiwe·win* 'a race in which there may be only two competitors' and *kakwe·čiskatitowin* 'a race of many competitors'; for Delaware, Brinton and Anthony give *kutschin* 'to come out of the house' and *ktscholtin* 'to come out of church,' i.e., 'to come out as a group.' A transitional stage between that of Delaware and that of Penobscot and the others is apparently found in Abnaki. Laurent gives *kagui k'-d-elalokaba?* 'what are you (dual) doing?' and *kagui k'-d-elalokhediba?* 'what are you (plural) doing?', but in connection with another word he says "*N'-d-abaznodakabena* is generally used when speaking of two or more persons, if their number is definite to the speaker; but when he has no definite idea of the number of persons performing the action, he will say: *n'dabaznodakhedibena*, we (many of us) make baskets."²⁹ The dual/plural contrast thus involves the use of material found elsewhere and is accordingly best regarded as the paradigmaticization of a derivational process which for some reason was favoured among the Eastern, and especially the Northeastern, languages. It should be noted, too, that the Eastern languages pluralize the third singular conjunct ending **-t-* by means of the compound ending **-h-etwi-t-*, which must have been originally used in AI verbs and then extended.

To return to the question of the Plains languages, one may state as a first impression that the divergences they attest look like innovations of the individual languages rather than archaisms. Consider some of the more infamous oddities found in Arapaho. The nasal infix (*nonoohówoot* 'he sees him,' from the stem *noohow-*) was so un-Algonquian looking to Michelson that he considered it might be accounted for by Siouan influence.³⁰ But if it is recalled (1) that it is found in the affirmative mode, which reflects the PA conjunct, (2) that in some roots the functionally parallel form is made by lengthening the short vowel of the stem (*čeb-* → *čeeb-*, reflecting PA **pem-*), and (3) that PA **y* gives Arapaho *n*, it becomes clear that this is merely the reflex of the Proto-Algonquian initial change, whereby **a* and **e* became **e·*, and **ay* was prefixed to long vowels.³¹ Nothing could be more solidly Algonquian.

The use of the conjunct participle as the indicative mode seems to be a recent Arapaho innovation. It is intriguing to consider the consequences in this regard of the conjecture that certain similar innovations in Arapaho and Plains Cree were the result of linguistic contact. Compare the following paradigms of the PA and Plains Cree conjunct and the Arapaho affirmative:³²

	PA TA		Cree TA		Arapaho TA	
	Direct	Inverse	Direct	Inverse	Direct	Inverse
1	-ak-	-it-	-ak	-it	-ó?	-éinóó -íθi?
2	-at-	-eθk-	-at	-isk	-ót	-éin
3	-a·t-	-ekot-	-a·t	-ikot	-oot	-éit
1p	-akent-	-iyament-	-a·ya·hk	-ikoya·hk	-éét	-éi?éét
12	-ankw-	-eθankw-	-a·yahk	-ikoyahk	-óóno?	-éinó?
2p	-e·kw-	-eθa·kw-	-a·ye·k	-ikoye·k	-óónee	-éinéé
3p	-a·čiki	-ekočiki	-a·čik	-ikočik	-óóθi?	-éiθi?

(All the direct forms are for singular object; all the inverse forms are for singular subject except for Arapaho *-íθiʔ* 'they—me.'). Both languages share the participial plural in the third person forms and have extended the opposition of **-a-* (Cree *-a-*, Arapaho *-oo-*) and **-eko-* (Cree *-eko-*, Arapaho *-ei-*) in parallel fashion, on the analogy of the independent order. The latter change in Arapaho must date from a period when the conjunct was still functionally subordinated to the independent, that is, to a period before the formation of the present affirmative/nonaffirmative opposition. This development is to be contrasted with that in Micmac, where the subjunctive (the only remnant of the old independent order) has been restructured on the model of the old conjunct (now the indicative). Compare the forms of Father Pacifique with those he cites from Maillard, which show the PA and general Eastern Algonquian structure.³³ Thus the developments in Micmac and Arapaho are entirely independent and cannot be the result of interinfluence. The restructuring in Arapaho should rather be compared with that of Plains Cree. Even if these developments are independent, the parallelism between them shows that Arapaho is, at least in this feature, not divergent from the Central languages. But if, on the other hand, this parallelism reflects linguistic contact, it must realistically be assumed to have taken place before such Arapaho sound changes as **k* to *ø* (in the inverse theme-sign) and **č* to *θ* (in the participial plural). And note that these innovations would be an areal feature shared by Arapaho and some, but not all, Cree dialects. If, then, the postulation of linguistic contact is correct, the more spectacular Arapaho sound changes must be dated very late (note that the change of **p* to *k*, and subsequently in some cases to *č*, must postdate the loss of original **k*). There is one piece of evidence which, if it can be verified, provides a rather striking confirmation of such a late date. The Arapaho word for 'gun' is *kokúy* (plural, *kokúyonó*),³⁴ an exact correspondent of Miami *papikwani* 'gun.'³⁵ Unless the meaning 'gun' is an independent development from some aboriginal acceptance, this word would seemingly have to have been borrowed into Arapaho from Miami (judging from non-linguistic historical evidence), and the spectacular sound changes of Arapaho, which contribute most of its divergent aspect, would then have postdated the Arapaho's knowledge of guns.

The somewhat scattered evidence cited in this paper seems to me to point to one general proposal about Algonquian subgrouping: until definite proof is presented for an alternative hypothesis, it is best to adhere to the hypothesis of Michelson and Bloomfield that the reconstructions based on the Central languages alone "will, in the main, fit all the languages, and can accordingly be viewed as Proto-Algonquian." As far as specific proposals for subgrouping are concerned, aside from the obvious groups like Cree-Montagnais-Naskapi and Ojibwa-Ottawa-Algonkin-Potawatomi, the one subdivision that seems to be indicated is Eastern Algonquian. Others remain to be demonstrated.

NOTES

¹ Op. cit., p. 229.

² *Ibid.*, p. 226.

³ IJAL 8.131-171.

⁴ Lg. 1.130-156.

⁵ VFPA 6.85.

⁶ *Papers of the Michigan Academy of Science, Arts, and Letters*, vol. 28, part IV, p. 537-542.

eds., *Language, Culture, and Personality*, p. 18.

s volume.

is volume.

lver in IJAL 26, p. 115.

"The Algonquian Independent Indicative," already cited.

; SWJA 14, p. 252.

Anthony, *A Lenâpé-English Dictionary*, p. 21.

's Key, p. 104.

ary of the Otchipwe Language.

Anthony, p. 27, 68, 77.

by Haas, IJAL 24, p. 166, 242.

and 95.

-20.

y Haas, IJAL 29, p. 65, fn. 2.

27.

. 328.15.

3. This was suggested merely as a possibility and does not reflect his present views on

. 288.

e irregularities which are not of concern here.

guage, §15, p. 159.

Abenakis and English Dialogues, p. 92.

or of Hermann Collitz, p. 37-40.

scussion of certain details is omitted.

m Mary Edwards, *Cree, an Intensive Language Course*; Arapaho from Salzmänn, *Arapaho Grammar*.

"The Algonquian Independent Indicative" (elsewhere in this volume), Appendix

cit., p. 50. Kroeber (Arapaho Dialects, 117) glosses this word as 'tube, gun, whistle,'
may be some connection with **pepikwani* 'flute.'

nee Stems and the Jacob P. Dunn Miami Dictionary, p. 83.

THE ORIGINAL HOME OF THE PROTO-ALGONQUIAN PEOPLE

BY FRANK T. SIEBERT, JR.

The conviction exists that the study of American Indian languages has contributed little information to advance our knowledge of prehistory beyond linguistic classification into stocks. This impression is not without justification, since the archaeologist and ethnohistorian desire more elaborate information and look to linguistics as a science for substantial contributions that go further than mere classification. Glottochronology and the lexicostatistical analysis of individual language stocks represent a notable effort in this direction, but the underlying assumptions of this type of study are subject to some serious objections. A uniform retention rate of basic vocabulary in terms of time throughout language groups of dissimilar structure may be false, and there are interfering biological, demographical, and cultural variables.

The technique of using natural history terms that can be reconstructed in a proto-language in an attempt to locate the original home or 'Urheimat' of a stock is not new. It has been applied to Indo-European with limited success, but it has not been tried on any scale with regard to American languages. The present study is directed at determining the home of the original Algonquian people before their general dispersion approximately three thousand years ago. To the archaeologists and other students of prehistory this is of major interest. The Algonquian stock is the largest, comprising about thirty-four living and extinct languages, and geographically the most widely distributed in North America, extending from Labrador to California and from Hudson Bay to Georgia, except for some interrupting enclaves of other stocks.

The method of using natural history terms in this type of study involves a number of difficulties which may lead to error. The original distributions of individual species before the disturbing forces of civilization altered them must be determined. Forests have been destroyed, dams built, and streams polluted. The numbers and ranges of some species have been reduced by persistent hunting and fishing. Many kinds of fish have been introduced deliberately or by accident into lakes and streams where they were not native. Slow climatic changes have made alterations in the ranges of some species, such as the more northern and eastern extensions of the moose in the Labrador Peninsula and a corresponding advance northward in Ontario,¹ even since the arrival of the Europeans. A large number of sources have been consulted in preparing the accompanying maps which attempt to portray the approximate original ranges of the various species with which I shall deal. In some instances my own observations have aided. It is to be hoped, therefore, that these maps are reasonably accurate.

For convenience, the linguistic terms for the fauna and flora will be treated separately in the following groups: birds, mammals, fish, and trees. Only the species having linguistic terms that can be reconstructed as Proto-Algonquian and that have cognates in both the geographically determined eastern and

central Algonquian languages will be considered. In the past, Algonquianists, with the exception of James H. Trumbull in the nineteenth century, have been quite remiss about making accurate species identifications for linguistic terms dealing with natural history. Semantic changes are not unusual, especially following the migration of a speech community, for in such cases an old linguistic term is often applied to a similar but different species not previously known to the speakers of the language.

For obvious reasons, ornithological terms are of the least value to this inquiry. Most birds migrate seasonally, often being driven by storms or the quest for food to localities in which they are only incidental. Furthermore, most species of birds given here have an extensive geographical range. On the other hand, trees are fixed, and their range is governed by climate, soil, and moisture. Although there has been some warming and amelioration of the climate in the Northern Hemisphere in this century, there is reason to believe that the distributions of arboreal species have remained essentially constant during the past millennium. Fish are also limited to their environment of the streams and lakes in which they are native. Therefore, the terms for fish and trees have greater merit in this study.

Lexical citations² in Fox,³ the Munsee dialect of Delaware,⁴ the Lake St. John dialect of Montagnais,⁵ and Penobscot⁶ are from my own field notes. Menomini forms are from Bloomfield,⁷ and Ojibwa forms are from Bloomfield⁸ and Baraga.⁹ Cree terms are from Bloomfield,¹⁰ Lacombe,¹¹ and Watkins.¹² The Shawnee and Miami forms are from Voegelin,¹³ and Massachusetts forms are from the John Eliot Indian Bible, Cambridge, 1663, with suitable passage citation. Abenaki forms are from Day¹⁴ and a few notes I collected many years ago. My Proto-Algonquian reconstructions employ the principles established by Bloomfield.¹⁵ When meaning differences between various languages occur, the apparent original significance is given and the sign # follows to indicate that some semantic changes have taken place.

An additional word is required concerning the accompanying maps. No attempt has been made to illustrate the ranges of widespread species, such as the Kingfisher and the Nighthawk. With regard to all species, uncommon occurrences outside the main distribution are not usually recorded.

EVIDENCE OF BIRD NAMES

1. PA **keliwa* 'Golden Eagle' (*Aquila chrysaëtos canadensis* Linnaeus), based on M *kene·w*, C *kiiw*, O *kiniw*, P *kàlo*. On the other hand, Fox and Miami agree in having a discrepant set, with F *ketiwa*, MI *kintiwa* (also MI *kintiwe·nsa* 'golden eaglet,' with dimin. noun final *-e·ns-a*), which posit **kentiwa*, which is somehow related to **keliwa*. Perhaps these were an original PA doublet. This species was always uncommon in the east, being confined chiefly to isolated mountainous districts. The original distribution as nearly as it can be determined is given in Map 1. Different terms exist in most languages for the Bald Eagle.

2. PA **me·me·wa* 'Pileated Woodpecker' or 'logcock' (*Dryocopus pileatus* Linnaeus). F *me·me·wa*, M *mε·mε·w*, MSj *me·me·w*, O *me·me·*, Dm *mé·me·w*, P *mème* (pl. *mèmak*). This crow-sized shy bird of the deep woods continues to retreat before civilization. Its distribution is given on Map 1.



3. PA **aʔa·we·wa* 'Oldsquaw' (*Clangula hyemalis* Linnaeus). M *aʔa·we·w* "brant" (with either semantic change or faulty species identification¹⁶), Cw *aha·we·si·s* (dimin.), MSj *aha·we·ši·š* 'Oldsquaw' (dimin.), MSs *aha·we·w* 'Oldsquaw,' O *aʔa·we·* "pigeon-tail duck" (Baraga, p. 3. Only the Pintail and Oldsquaw qualify for this description.), P *ahəwehso* 'Oldsquaw' (root *ahəwe-*, with quasi-diminutive *-əhs-* 'living creature,' and animate final *-o*). It seems probable that most languages except perhaps Menomini refer this term to the Oldsquaw (see Map 1).

4. PA **ka·ka·kiwa* 'Common Raven' or 'Northern Raven' (*Corvus corax* Linnaeus). F *ka·ka·kiwa*; M *ka·ka·kew*; C and Cw *ka·ka·kiwa*, *ka·ka·kiw*; MSj *ka·ka·čow*; O *ka·ka·ki* (final **-wa* after **i* is always lost in O); P *kákəko* (final PA **-iwa* > P *-o*). (See Map 2.)

5. PA **se·hse·hsiwa* (?), 'Greater Yellowlegs' (*Totanus melonaleucus*). Cw *se·se·siw*, MSj and MSs *še·še·šow*, A *sasasso*, P **sésesso* (based on Rasles' Kennebec dialect *séséss8*, unglossed bird name; PA **hs* > P *s* in word medial, but P *ss* in syllable final). Modern Penobscots do not know the term, perhaps because the species is now very rare in central Maine.

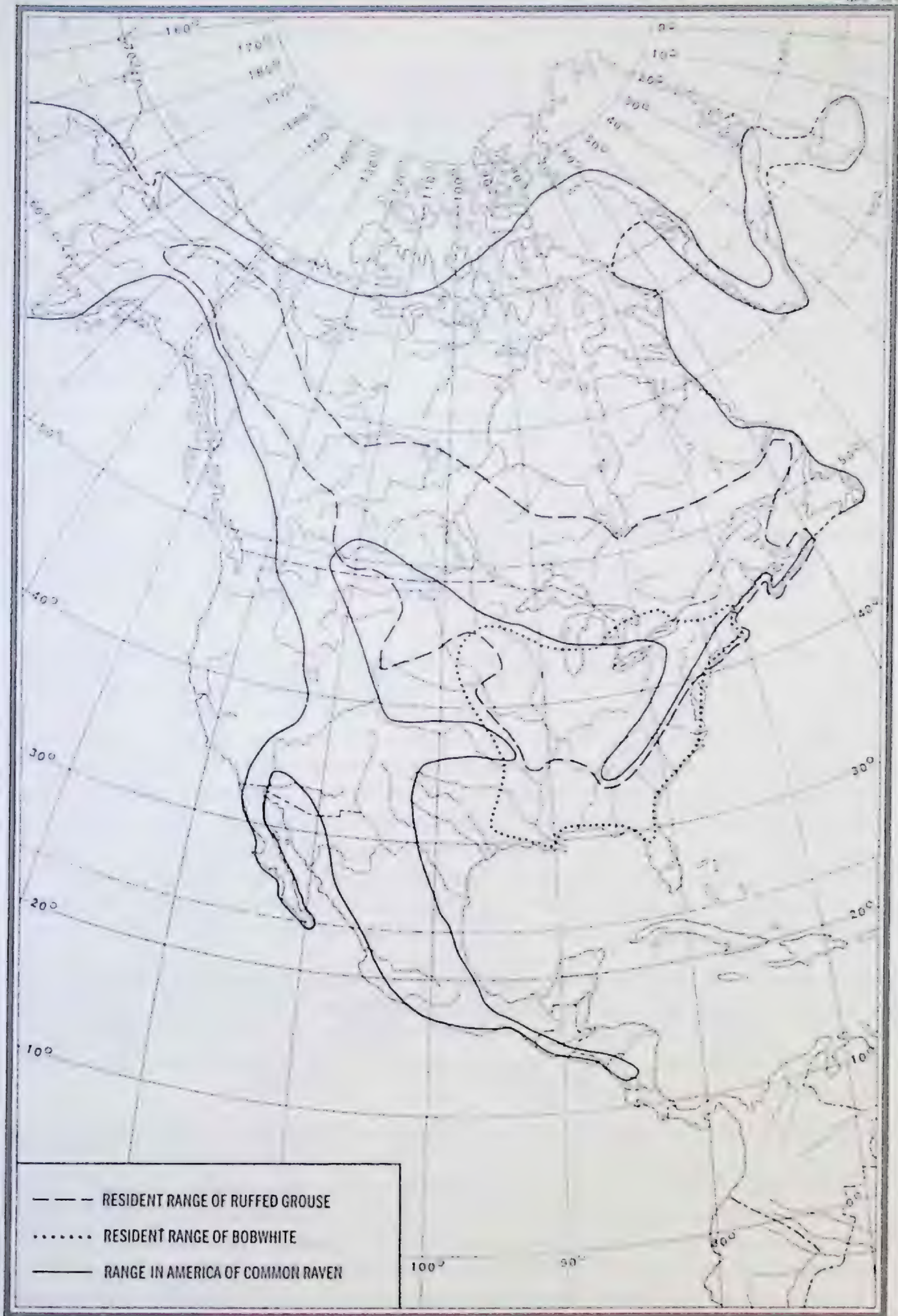
6. PA **po·hpo·hkwa* (?), 'Bobwhite' or "quail" (*Colinus virginianus virginianus* Linnaeus). F *po·hkwi·ha* (with initial syllable loss, and dimin. *-i·h-*), MI *pohkosisia* (dimin.), D *po·hpó·hkəs*, Dm *po·hpó·hkwi·s* (dimin.), N *poohpoohqu-tteh* "quail(s)" (Psalm 105:40). (See Map 2.)

7. PA **paxpaxkiwa* 'Ruffed Grouse' or "partridge" (*Bonasa umbellus* Linnaeus). F *pahki·wa* (with initial syllable loss; PA **i* > F *i·* when accented and followed by *w* or *y*), C and Cw *paspaskiw*, MSj *pispisčow* (PA **a* > MS *i* in certain types of closed syllables; PA **k* > MS *č* before original **i* and **e*, which had fallen together to MS *i* before the consonant shift occurred; PA **-iwa* > MS *-ow*, as in examples no. 4 and 5), MI *pahkia* (with initial syllable loss; MI *-ia* < PA **-iwa* and **-e·wa*), Dm *pahpáhko* (final PA **-iwa* > Dm *-o*, as in D and P, of example no. 4). (See Map 2.)

8. PA **okeškemani·ʔsiwa* 'Kingfisher' (*Megaceryle alcyon*). Supported by M *okε·skemani·ʔ* (pl. *okε·skemani·ʔsak*), Cw *okiskimanisiw*, MSj *očisčiminšow* (See note in item no. 7 above), O *okiškimani·ssi*, P *kaskamánəssso* (with initial vowel loss; the next two vowels reflect the ancient variation of PA **a* **e* > Pe or ə, found in PA **mexkena·hkwa* 'snapping turtle' > P *ámihkənahk*", C *miskina·hk*, O *mikkina·kk*, Arapaho *beʔénoo*, where PA **m* > Arapaho *b*, **xk* > ʔ, and **a·* > oo; and in PA **keno·šye·* 'willow' > P *kanose-*, M *kenu·si·-*; PA **ʔs* > P *ss* following **i·*, as in PA **wi·ʔsak-* 'bitter' > P *wəssak-*).

9. PA **mwa·kwa* 'Common Loon' (*Gavia immer*). M *muak*; C *ma·kwa*; Cw *mwa·k*, *mwa·kwa*; MSj *mwa·kw*; O *ma·nk* (pl. *ma·nkwak*; with unoriginal *nk* cluster as shown by the Menomini and Cree forms); MI *ma·nkwa* (also with unoriginal *nk* cluster, and perhaps a loan from Ojibwa); but in eastern Algonquian there is only P *màk*"is 'Red-throated Loon' (*Gavia stellata*), a diminutive form with semantic specialization for a smaller species which winters chiefly along the Atlantic coast and is scarce inland. For this species there are Cw *a·simwa·k* and MSj *a·šimwa·kw*.

10. PA **pi·škwa* ~ **peškwa* 'Nighthawk' (*Chordeiles minor*). F *peškwe·ha* (with dimin. *-e·h-*), M *pε·skiʔ* "mosquito hawk" (dimin. *-iʔ*, *-iʔs-*), C *pi·skwa*,



Cw *pi·sk*, MSj *pi·škw*, O *pe·škwe* ‘a kind of owl’ (Baraga p. 350, with faulty species identification; does not match, and may be a reshaped loan from Fox), S *peškwa*, Dm *pi·škw*, N *peeskq* (Deuteronomy 14:15), P *ppask^w* (reshaped with initial fortis *pp*), Arapaho *čís* (PA **p* > Arapaho *č*).

This word presents problems, perhaps because of reshaping in some languages. If one assumes a PA doublet, as the incompatibility of the forms suggests, then the situation resolves itself into an old alternation of PA **i· ~ *i* (as in PA **mi·n- ~ *-min-* ‘berry’) and, since **i* is not permitted in PA initial syllables, variant **piškwa* > PA **peškwa*. This short vowel doublet is reflected in all languages except C, Cw, MS, Dm, and N.

11. PA **pele·wa* ‘large fowl, edible game bird.’# F *pene·wa* ‘turkey,’ M *penε·w* ‘quail, partridge,’ C *piye·w* ‘partridge,’ MSj *pile·w* ‘Spruce Partridge, Canada Grouse’ (*Canachites canadensis*),¹⁷ O *pine·* ‘partridge’ (but O *pine·ssi* ‘large bird’ and *misisse·* ‘turkey’), S *peleewa* ‘turkey,’ Dm *ple·w* ‘turkey,’ P *pàles* ‘Passenger Pigeon’ (*Ectopistes migratorius*, now extinct; pl. *pàlesak*; root *pàle-* ‘fowl,’ with quasi-diminutive *-es* ‘little flyer,’ as in P *àmawes* ‘bee,’ *sk^wàtes* ‘Redstart,’ *mk^wiptes* ‘autumn leaf’), Arapaho *čénee* ‘turkey, quail’ (PA **p* > Arapaho *č*, PA **l* > Arapaho *n*).

12. PA **ti·nti·wa* ‘Blue Jay’ (*Cyanocitta cristata*). F *ti·ti·wa*, Cw *te·hti·siw* (dimin.; does not match without assuming dissimilative (?) change of the first vowel), O *či·nti·ss* (dimin.; original PA **t ~ *č* before **i·* or **i*), S *tiiti*, P *tītayαs* (reshaped with noun final *-αs*, as in P *k^wánawαs* ‘Long Hair,’ *kàwayαs* ‘sleepyhead’).

13. PA **kaya·Xkwa* ‘gull’ (generic, but referred chiefly to the Herring Gull, *Larus argentatus*). F *akaya·škw* (reshaped by accretion of an unoriginal initial vowel, other examples of vocalic prosthesis being found in F and P, like F *aka·kwa* ‘porcupine’ and P *ámihkənahk^w* ‘snapping turtle’), M *kaya·h* (pl. *kaya·hkok*), C and Cw *kiya·sk*, MSj and MSs *čiya·škw* (all C and MS dialects reflect the old variation PA **a ~ *e* as **e* > *i*, in MS historically preceding the shift of **k* > *č* before *i*), O *kaya·šk* (pl. *kaya·škok*), MI *kiyahkwa*, P *kahk^w* (pl. *kàhk^wak*, dimin. *kàhk^wis*; < pre-Abenaki **kàyahk^w*, with syllabic syncope involving successive homorganic vowels, as in P *sàkat* < PA **salakatwi* ‘it is difficult,’ P *k^wàhk^wi* < PA **kwayaxkwi* ‘straight’). The cluster **Xk* in PA **kaya·Xkwa* represents a discrepant cluster in **-k*.

14. PA **o·ho·mi·?siwa* (?), ‘Great Horned Owl’ (*Bubo virginianus*). This term calls for the collection of more information, and the PA form is tentative. C *o·ho·w* (reshaped ?), Cw *o·ho·misiw* ‘large horned owl,’ MSj *o·ho·mšow* ‘Great Horned Owl,’ MSs *o·ho·w* (reshaped ?), N *oohoomoen* ‘great owl’ (Leviticus 11:17; root *oohoom-*).

15. PA **ko·hko·hkaho·wa* ‘Great Horned Owl’ (*Bubo virginianus*). The historical and semantic relations of this term to the preceding are not clear. Cw *ko·hko·hkaho·w*, O *ko·kko·kka^o·*, N *koohkookhaus* ‘great owl’ (Deuteronomy 14:15, 14:16), P *kohkókhahso* ‘Great Horned Owl’ (root *kohkokha-*, with metathesis of *h* in *hk* cluster before *a*, as also in N; quasi-diminutive *-ahs-* ‘living creature,’ as in P *anéhtahso* ‘humming-bird’).

In addition, the New England languages have a diminutive apparently used for the ‘Long-eared Owl’ (*Asio otus wilsonianus*), N *koohkookhes* ‘owl’

(Leviticus 11:16), P *kóhkokhes* 'Long-eared Owl' (with quasi-diminutive *-es* 'little flyer,' in item no 11). A reshaped and contracted form is found in Dm *kókho·s* 'Great Horned Owl.'

16. PA **awe·ʔle·wa* 'hawk of any species.' MI *awe·hse·nsa* 'bird'¹⁸ (dimin. *-e·ns-* as in example no. 1; root *awe·hse·-*), Dm *awéhle·w* 'hawk of any species' (dimin. *awéhle·šo·š* 'bird'), N *owóhshaog* 'hawk(s)' (Deuteronomy 14:15, with pl. *-og*), P *áwehle* 'hawk of any species' (or dimin. *áwehles*, pl. *awéhlesak*, with quasi-diminutive *-es*, as in items no. 11 and 15).

PA **ʔl > P hl*, M *ʔn*, C *hy*, O *ss*, MI *hs*, N *hs*, Powhatan *ss*, as in PA **aʔlapyá* 'net' > P *-hlapi-* 'net, web' (as in P *amoslápíhke* 'spider'), M *aʔnap* (pl. *aʔnapyak*), C *ahyapiy*, O *assap*, N *hashabp* (Ecclesiastes 9:12, Job 8:14), Powhatan *aussab*; PA **neneʔla·wa* 'I kill him' > P *nánihlα* (with immutable *l* in P before **i*, as in PA **neʔši* 'kill thou him' > F *neši*, M *neʔsin*, but P *nle* 'kill thou him,' and *nli* 'kill thou me'). On the other hand, PA **hl > P hs*, as in PA **le·hle·wa* 'he breathes' > P *nèhse*.

17. PA **sa·ʔsake·wa* (?) 'heron, crane,' species not determined. Data on this term are too scanty to ascertain a definite archetype, and are mentioned only to point out a correspondence. M *sa·ʔsakew* 'heron,' N *sassadt* 'crane' (Isaiah 38:14; PA **k > N t* before **i* and **e·*), Powhatan *ussac* (Strachey).

Unrelated are Dm *káxko* 'Great Blue Heron' (*Ardea herodias*) and P *kàsko*, suggesting an earlier eastern Algonquian **kaθkiwa*.

There are also M *otε·čiah* 'crane' (pl. *otε·čiahkok*), Cw *očiča·hk*, MSj *očiča·hkw* 'Great Blue Heron' (with original **t ~ *č*), suggesting **otečya·hkwa* without any eastern reflex. Note that noun-final PA **-a·hkwa* is as in PA **mexkena·hkwa* 'snapping turtle,' which has no connection with PA **-a·xkw-* 'wood; hardwood or deciduous tree.'

18. PA **wesehkwa ~ *asekwa* (?), 'merganser' (used in most languages for the American Merganser, *Mergus merganser americanus*, and the Red-breasted Merganser, *M. serrator*, and perhaps some other similar species). PA either had a doublet or the forms have been reshaped in some languages. Data are insufficient to draw firm conclusions.

M *ose·h* "sawbill duck" (pl. *ose·hkok*); Cw *asihk*, *asik*, *osik* (Watkins p. 64, 119, 392; these variants may represent different dialects), "merganser, saw-bill duck, fish duck"; MSj and MSs *ošok* (pl. *ošokwoč*), 'merganser'; O *ansik* "saw-bill, kind of wild duck" (Baraga p. 38, pl. *ansikwak*, with unoriginal *ns* cluster), and O *osihka·ssi* "Horned Grebe" (dimin., Jones, O Texts, II:60-62); P *wasihkawē* 'merganser, shelldrake' (pl. *wasihkawak*; ending reshaped).

EVIDENCE OF MAMMALIAN NAMES

19. PA **a·skikwa* 'seal' (used primarily and originally for the Harbour Seal, *Phoca vitulina concolor* DeKay).

Cw *a·hkik*, MSj *a·hčok* (pl. *a·hčokwoč*), O *a·skik* (pl. *a·skiko·k*), P *àhkik^w* (pl. *àhkik^wak*). Although PA **i* and **e* fell together in C and O at an early date, P shows that the original vowel is **i*. PA **e > P i* before the reflexes of PA **hk*, **ʔl*, **xk*, **sk*, and **ht*, but PA **e > P ə* before the reflexes of single consonants and the clusters PA **θk*, **kw*, **θkw*, and **hs*. Therefore, only PA **i* could be correct (See Map 3).



Note noun-final PA **-ikw-a* 'small gnawing animal, rodent,' as in PA **wa·pikwa ~ *a·pikwa* 'rat, mouse' (supported by the diminutives F *wa·pikono·ha* 'mouse,' Cw *a·pikosi·s*, P *αpik^wsehso*, and so on.

20. PA **e·hsepana* 'raccoon' (*Procyon lotor*). F *e·sepana*, M *ε·hsepan*, O *e·ssipan*, Dm *e·spán*, P *ésəpanəss* (dimin.; pl. *ésəpansak*) (See Map 4). The raccoon has extended its range northward in recent centuries.

21. PA **pešwa* 'lynx, bobcat' (applies in some languages to both *Lynx canadensis* and *L. rufus*). F *pešwa*, M *pese·w*, C and Cw *pisiw*, MSj *pišow* (pl. *pišo·č*), O *pišiw*, S *pešwa*, P *pəso* (pl. *pəšəwak*).

22. PA **anikwa* 'squirrel' (generic), (PA **-ikw-* 'rodent,' as in example no. 19). F *anikwa*, C and Cw *anikwača·s* (with quasi-dimin.), S *hanikwa*, D *xáni·kw*, Dm *ani·kwəs* (dimin.), P *mánik^wsəss* 'chipmunk' (dimin.; pl. *mánik^wsak*). The D and P forms have been reshaped by initial accretion of a consonant, and there is semantic specialization in P.

23. PA **pele·nikwa* 'flying squirrel' (*Glaucomys volans* and *G. sabrinus*). M *penε·nik*, D *ple·ni·kw*, Dm *ple·n* (pl. *ple·nak*), A *planikw*, P *pəlenik^w* (pl. *pəlenik^wak*). Apparently this is an ancient compound of PA **pele-* 'fowl' and final **-anikw-a* 'squirrel,' in turn a derivative of PA **-ikw-* 'rodent' (See examples no. 11, 19, 22).

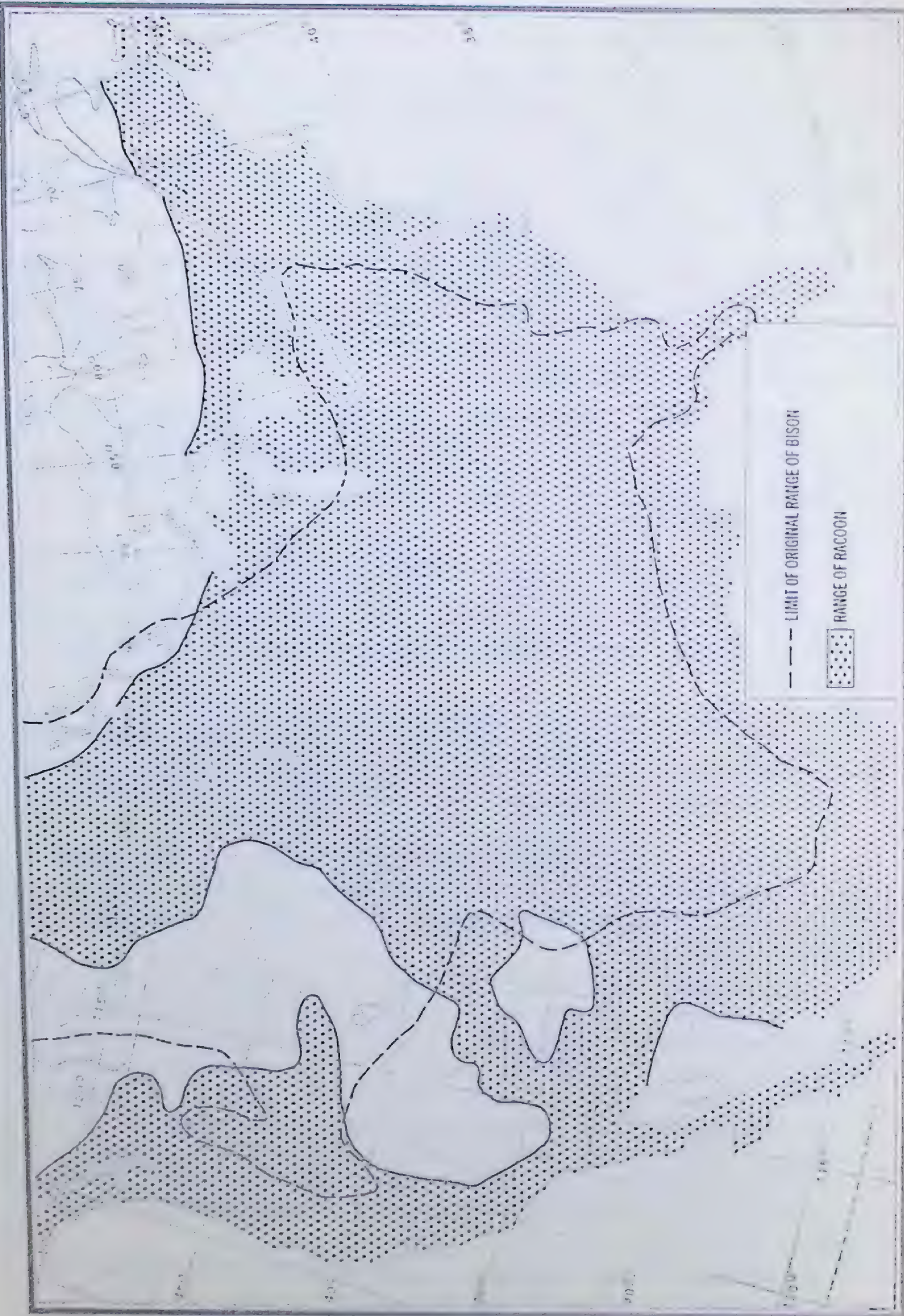
24. PA **mo·swa* 'moose' (*Alces americana*).# F *mo·swa*, M *mo·s* (pl. *mo·hsok*), C and Cw *mo·swa* (pl. *mo·swak*), MSj *mo·s* (pl. *mo·sič*), O *mo·ns* (pl. *mo·nsok*; with unoriginal *ns* cluster), MI *moswa* 'deer,' Dm *mo·s* (pl. *mo·sak*), P *mos* (pl. *mòsok*). Semantic change has occurred only in MI (See Map 5).

25. PA **ka·kwa* 'porcupine' (*Erethizon dorsatum*), (PA **-a·kw-* 'bushy-tailed animal'). F *aka·kwa* (reshaped with unoriginal initial or prosthetic vowel, as in example no. 13), C and Cw *ka·kwa*, MSj *ka·kw* (pl. *ka·kwoč*), O *ka·k* (pl. *ka·kok*), S *kaakwa*, Dm *ka·kw* (pl. *ká·kwak*), A *kōkw* (See Map 5).

26. PA **šeka·kwa* 'skunk' (PA **-a·kw-* 'bushy-tailed animal,' **šek-* 'urinate'). F *šeka·kwa*; M *seka·k*; C *sika·k*, *sika·kwa*; Cw *sika·k*; MSj *šika·kw*; O *šika·k* (pl. *šika·kok*); S *šekaakwa*; MI *sikakwa*; A *səkōkw*; P *nsə̀kαk^w* (reshaped with unoriginal prosthetic *n-*).

27. PA **wa·kwa*, with dimin. **wa·kwehša ~ later *wa·kohša* 'fox' (PA **-a·kw-* 'bushy-tailed animal'). All languages have this gloss in diminutive form, and some have a superadded or double diminutive. F *wa·koše·ha* (dimin. *-e·h-*, as in examples no. 6 and 10, superadded), M *wa·koh* (pl. *wa·kohsak*), O *wa·košš* (*wa·košši?*, with double dimin.), N *wonkquss* (*wonkquss-iss-og* 'little foxes,' Psalm 63:10; pl. with double dimin.), A *wōkwsás*, P *k^wə̀k^wsəss* (reshaped with initial *k^w* for **w*, by regressive assimilation (?); and a different superadded or second diminutive. PA **-ehs- > P -əss*, following PA **-ehš- > P -ohs-*, reduced to *-s-* by syllabic syncope before *h*-consonant cluster).

28. PA **maθkwa* 'bear' (generic). F *mahkwa*, C and Cw *maskwa*, MSj *maškw*, O *makkwa*, S *mkwa*, D and Dm *maxkw*, N *masq* (pl. *mashquog*; I Samuel 17:34, II Kings 2:24), Arapaho *wóx* (PA **m > w*, PA **a > o*).



There is also the substitute form, PA **awe·hsehša* 'little who is it?', secondarily 'bear,' because of taboo or word avoidance, supported by M *awε·hseh* 'bear' (pl. *awε·hsehsak*) and P *áwehsohs* (pl. *awéhsohsak*; PA dimin. **-ehš-*, as in example no. 27 above; PA **e > P o* before PA **hš* and **hkw* with loss of **w*, as in PA **nemehšo·mehsa* 'my grandfather' > P *nəmóhsoməss*; PA **netax·kehkwa* 'my kettle, pot' > P *nátahkohk*).

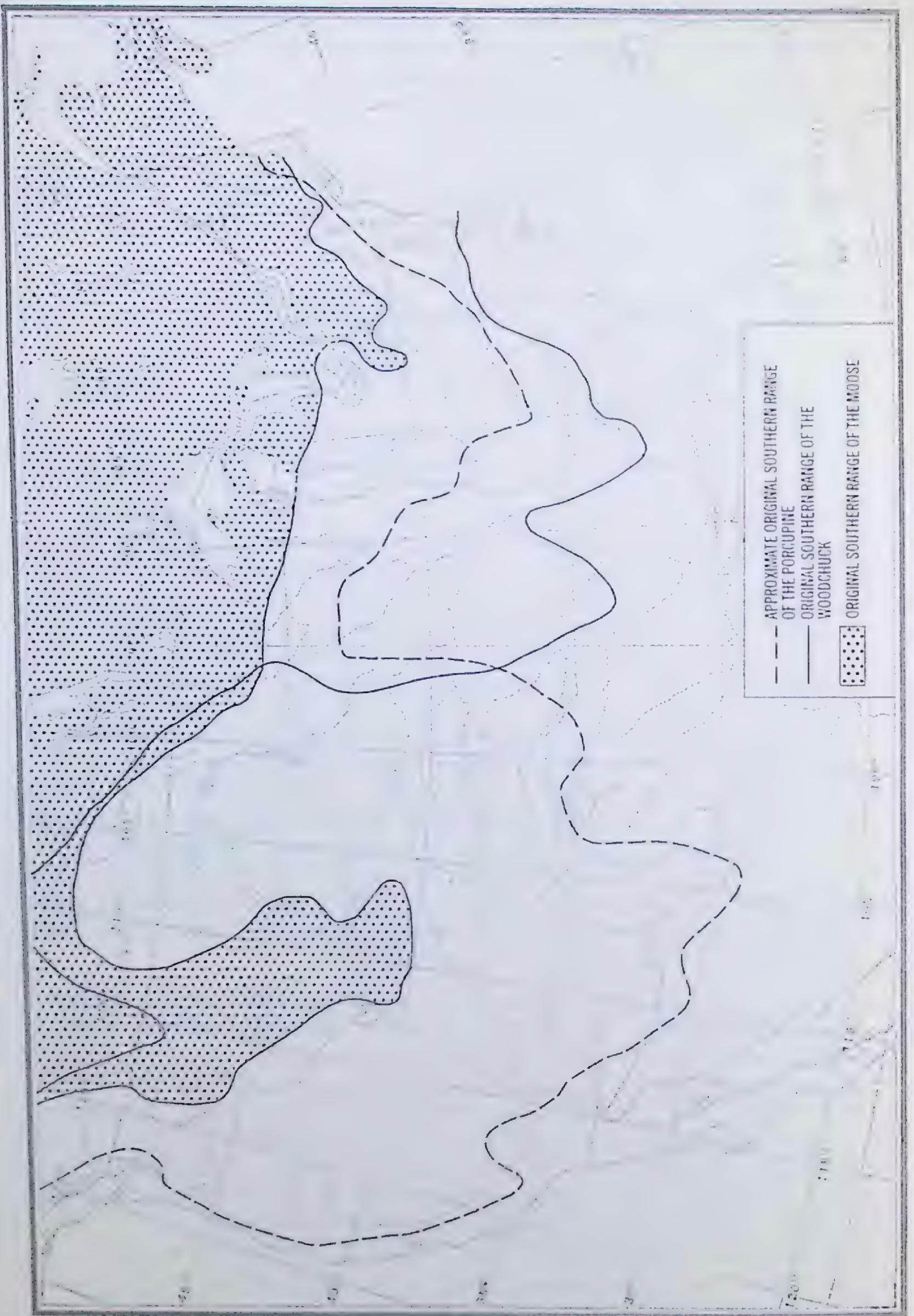
29. PA **akwaθkwa* 'woodchuck, groundhog' (*Marmota monax*), (PA **akw-* 'adhere; dirty,' **-aθkw-a* 'bear'). M *akuah* (pl. *akuahkok*), A *akaskw* (with dissimilative loss of *w*, as also in the N form to follow), N *ogkosq* (pl. *ogkoshquog* 'conies'; Proverbs 30:26) (See Map 5).

30. PA **pešehkiwa* 'buffalo, bison.' M *pesε·hkiw*, Cw *pisihkiw*, O *pišikki* (pl. *pišikkiwak*), A *pəsihkó*, P *wəsihko* (PA initial **p* and **m > P w* before sequences **-eCehk-* and **-elw-*; PA **e > P i* before **xk*, **sk*, **hk*).

This is the PA term for the 'wood buffalo' (*Bison bison pennsylvanicus* Shoemaker), which, when compared to the plains buffalo (*Bison bison bison*), was darker and had a less pronounced hump and longer, more slender horns. The first English-speaking person recorded to observe them was Sir Samuel Argoll, who in 1612 found them on the Potomac River "65 leagues into the land" (Purchas). Wood bison originally roamed as far east as Syracuse, New York, and made seasonal migrations from the Great Lakes area into the mountain valleys of central Pennsylvania, the Virginia and Carolina piedmont, and as far south as southeastern Georgia and central Florida. Several place-names ("Buffalo Creek") attest their former presence in western Pennsylvania, New York, and West Virginia. Although they were common throughout parts of their range, they formed smaller herds and were never so numerous as the plains bison. Hybrids of the races were fertile, and no boundary between the two is known. Like the plains bison, the wood bison were easily killed because of their poor eyesight and their tendency to run in a straight line. The eastern subspecies became extinct in Georgia and the Carolinas before 1770, in northern and central Pennsylvania between 1801 and 1810, and in Ohio and Kentucky between 1793 and 1795. Some survivors of another subspecies of wood bison (*Bison bison athabasca* Rhoads) which persist in the Great Slave Lake region of northwestern Canada were once found from northern Alberta eastward to Manitoba and northward. It is to this variety that the Swampy Cree term pertains (See Map 4).

31. PA **atehkwa* 'caribou' (refers to the eastern woodland caribou, *Rangifer caribou caribou* Gmelin, or *Rangifer tarandus caribou* of Hall and Kelson, who group all varieties in one species). M *atε·h* (pl. *atε·hkok*), C and Cw *atihk*, MSj *atohk* (pl. *atohkwoč*), O *atikk*, northern O *atihk* (Jones, Ojibwa Texts, vol. I, p. 406), P *atohk-* (in P *atohkímosi* 'striped maple, moosewood tree,' *Acer pennsylvanicum*, the only example of this element in P; PA **e > P o* before PA **hš* and **hkw* with loss of **w*, for example see items no. 27 and 28), and languages with semantic change, such as Malecite-Passamaquoddy *ətohk* 'deer,' Arapaho *hóte?* 'bighorn sheep' (*Ovis canadensis*).

N *ahtuhq* 'deer' (pl. *ahtuhquog* "roes," Song of Solomon 2:7) and D and Dm *ahtó* 'deer' seem to be reshaped with *ht* for PA **t*, and like P they have PA **e > o* before PA **hkw*, a vowel shift held in common by P, N, D, and Dm at least before this consonant cluster. N, D, and Dm show semantic



change by transferring the term to the deer when their speech communities migrated south of the range of the caribou (See Map 3).

32. PA **aya·pe·wa* 'buck; male of moose, deer, elk, caribou.' F *aya·pe·wa*; M *aya·pε·w*; C and Cw *aya·pe·w*; MSj *aya·pe·w*; O *aya·pe·*; S *hayaape* (pl. *hayaapeeki*); N *aiump*, *eiyoumpa* (Proverbs 5:19, 6:5; Song of Solomon 8:14); P *áyape* (pl. *áyapak*).

33. PA **mahkwehsehsa* ~ **maxkwehsehsa* 'fawn,' itself a diminutive form (PA dimin. **-ehs-*). Since there is no C cognate the first cluster (**hk* or **xk*) is undetermined. F *mahkosese·ha* 'little fawn,' an archaic or obsolescent word in F, with a double diminutive (F *-es-* < PA **-ehs-*, to which is added *-e·h-*, the very common living dimin., as in examples no. 6, 10, 27), P *mák^wsəss* 'fawn' (pl. *mák^wsəssak*; dimin. *-əss* < PA **-ehs-*), P *mák^wsəssis* 'little fawn; fawn of the third litter' (last one born in a litter of three, and stunted in size), a double diminutive (pl. *mák^wsəssisak*). The stem (PA **mahkwehs-* ~ **maxkwehs-*), which itself may be of diminutive origin, has no relationship with PA **maθkw-a* 'bear.'¹⁹

34. PA **ameθkwa* 'beaver.' F *amehkwa*, C and Cw *amisk*, MSj *amiškw*, O *amik*; S *hame[?]kwa*; Dm *amóxkw* (PA **e* > Dm *o* before **θkw*, as in PA **eθkwe·wa* 'woman' > Dm *óxkwe·w*).

35. PA **wa[?]šaškwa* 'muskrat.' F *ašaškwa*; M *o[?]sas* (pl. *o[?]saskok*); O *waššašk*, *oššašk* (pl. *oššaškok*); S *hoθaškwa*; Dm *xwáškwəšəš* (dimin.; with initial syllable loss, and PA **[?]š* and **hš* > Dm *xw* before original short vowels only, as in PA **no·hšihsema* 'my grandchild' > Dm *nó·xwi·s*); Powhatan *osasquus* (dimin., Strachey).

C and Cw *wačask* 'muskrat,' and MSj *očiškw* agree, having *č* for expected *s*, by diminutive symbolism.

36. PA **šenkwehsa* 'weasel.' ≠ F *šekosa*; M *seko·h* (pl. *seko·hsak*; reshaped, perhaps by analogy, to M *seka·k* 'skunk'); C and Cw *sihkos* (pl. *sihkosak*); MSj *šihkoši·š* (dimin.); O *šinkwass*, *šinkoss*; but MI *šinkosa* 'mink' (pl. *šinkosaki*) (See the next item).

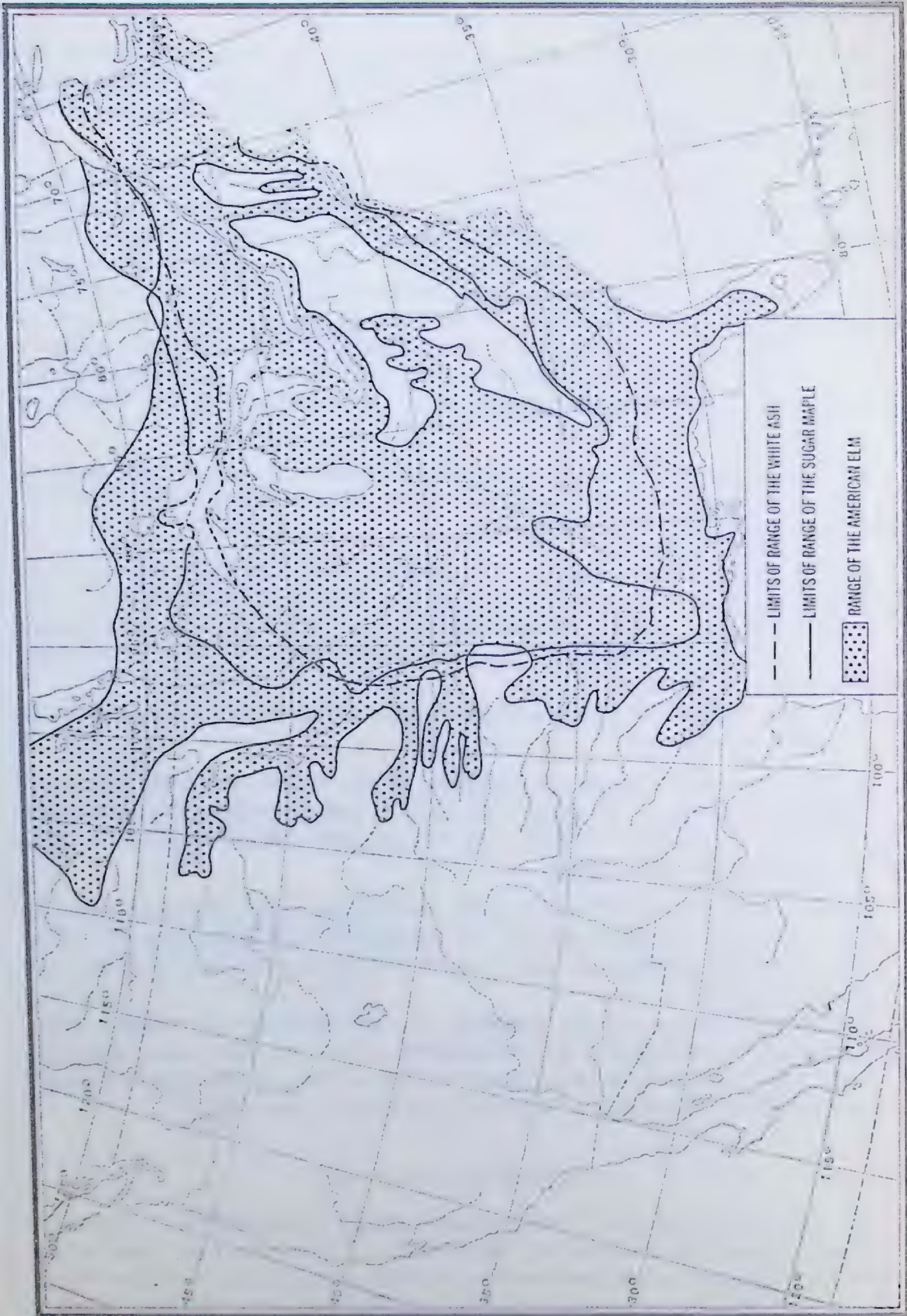
37. PA **ša·nkwe·hšiwa* 'mink'. ≠ M *sa·hkih* (pl. *sa·hki·hsak*), C and Cw *sa·hkwe·siw* (pl. *sa·hkwe·siwak*); O *ša·nkwe·šši*; S *šaakweewe[?]θi* (with reshaped or different dimin.), but D *sánkwe·* 'weasel' and P *sák^wehso* 'weasel' (pl. *sák^wehsəwak*).

Apparently because of the similarity of the words for weasel and mink and the close resemblance of the two creatures in physical appearance, semantic changes have occurred in MI, D, and P. The eastern Algonquian languages have transferred the original PA term for the mink to the weasel.

EVIDENCE OF TREE NAMES

38. PA **ka·wa·ntakwa* 'white spruce' (*Picea glauca*); (PA **-a·ntakw-* 'evergreen or needle tree,' as in F *papaka·takwa* 'evergreen tree,' contrasting with PA **-a·xkw-* 'wood; hardwood or deciduous tree'). O *ka·wa·ntak* 'white spruce tree' (pl. *ka·wa·ntako·k*), P *káwatak^w* 'white spruce' (pl. *káwatakok*), but M *ka·wa·htek* "spruce" which does not match due to reshaping with the

MAP No 6



M noun-final *-a·htek* which has the generalized meaning 'tree' (PA **-a·htekw-* 'stick, stem' > C *-a·htik*, O *-a·ttik* 'stick, tree,' P *-ahtək*^w 'stick, stem,' as in P *wətaməkánahtək*^w 'pipestem') (See Map 7).

39. PA **menahekwa* 'tamarack, American larch' (*Larix laricina*), # C and Cw *minahik* "spruce" (pl. *minahikwak*), MSj *minihikw* 'white spruce tree' (pl. *minihikwoč*), P *mənəhok* 'tamarack' (pl. *mənəhokak*).

PA **e* > P *ə* before a single consonant, and PA **e* > P *o* before **hš*, **hkw*, and **kw* (only when treated as **hkw* following **h* in the sequence **-hekw-*) with loss of **w* (See examples no. 27, 28, 31); otherwise PA **e* > P *ə* before **kw*.

Penobscot has preserved the original meaning of the PA term since 'white spruce' is already provided for (See example no. 38), and C, Cw, and MS show semantic change (See Map 7).

40. PA **a·kema·xkwa* 'white ash' (*Fraxinus americana*), # (a compound of root **a·kem-*, from PA **a·kema* 'snowshoe' > F *a·kema*, M *a·kem*, O *a·kim*, P *əkəm*; and PA **-a·xkw-* 'wood; hardwood or deciduous tree' (See example no. 38). Cw *a·kima·sk* 'black ash' (*Fraxinus nigra*), MSj *a·čima·škw* 'black ash,' O *a·kima·kk* 'white ash,' P *əkəmahk*^w 'white ash' (PA **a·* > P *a* preceding **xk*, **sk*, **θk*, and **nk*, rather than the regular correspondence to P *α*).

Ojibwa and Penobscot preserve the original meaning, and the Cree-Montagnais transferred the name to a similar species when they migrated north of the range of the white ash (See Map 6).

41. PA **wi·ʔsaka·xkwa* "kind of tree, PA species not determined" (PA **wi·ʔsak-* 'bitter,' **-a·xkw-* 'wood; hardwood or deciduous tree'). F *wi·saka·hkw*, M *we·ʔsaka·htek* (reshaped with M generalized noun-final *-a·htek* 'tree' < PA **-a·htekw-* 'tree; stick, stem.' See item no. 38) (the species is not accurately determined for either F or M, but it may be the black ash), O *wi·ssaka·kk* 'frêne gras or black ash' (*Fraxinus nigra*), P *wəssakahk*^w 'aspen,' both *Populus tremuloides* and *Populus grandidentata* (pl. *wəssakahk*^w*ak*; for PA **-i·ʔs-* > P *-əss-*, see example no. 8).

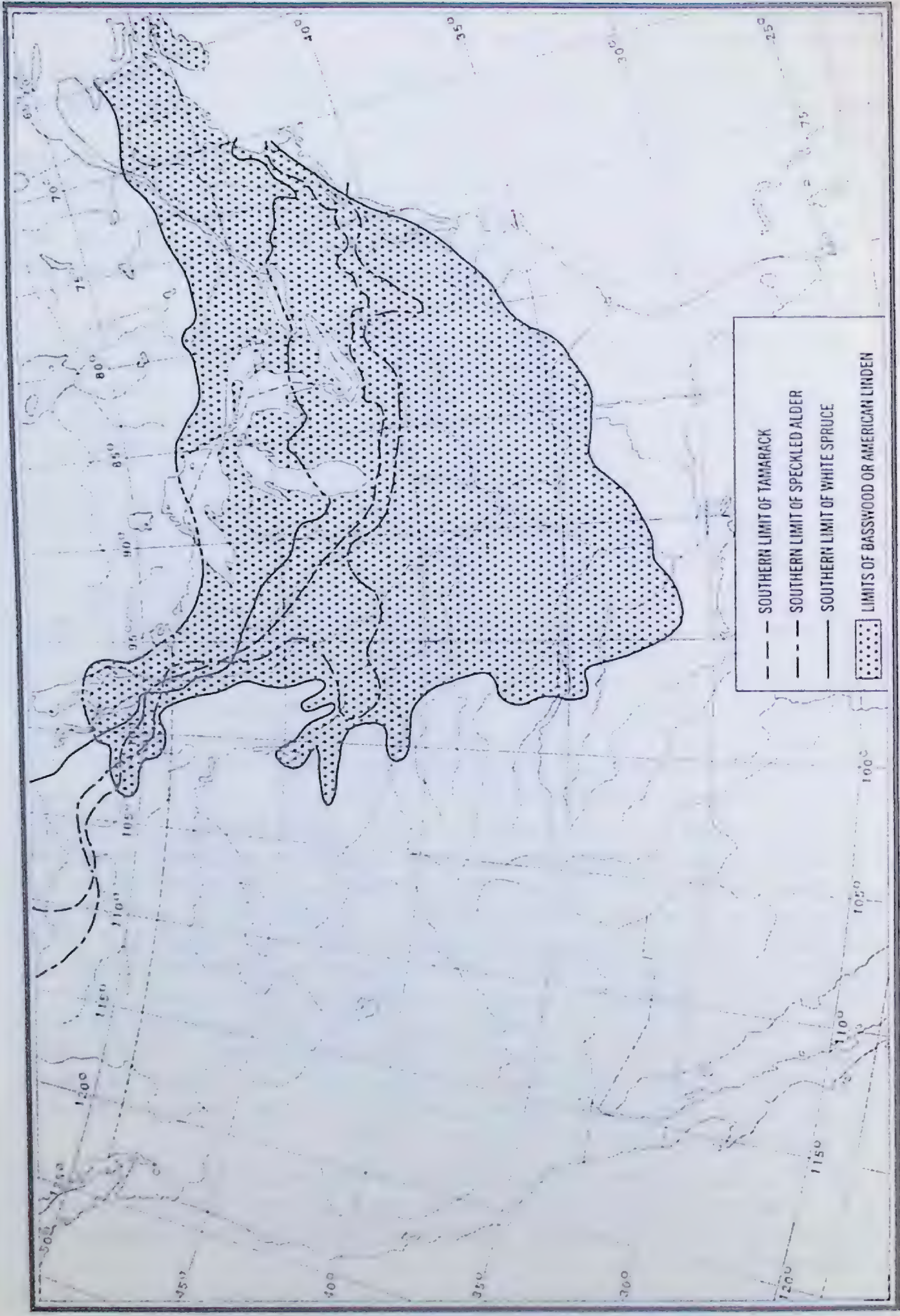
42. PA **šenta* 'conifer, evergreen tree; evergreen bough,' # pl. **šentakī*. M *sehta·k* 'bough of needle tree, needle of needle tree' (reshaped for expected **sehta·h*, similar to M *mehka·k* 'goose' for expected **nehka·h* < PA **nexka*, supported by F *anehka*, C *niska*, O *nikka*, Arapaho *néʔ*), C and Cw *sihta* 'evergreen' (pl. *sihtak* "evergreen brushwood"), Dm *šənt* 'hemlock tree' (*Tsuga canadensis*) (pl. *šəntak*), P *səti* 'conifer, evergreen tree; evergreen bough' (pl. *səṭəyak*; ending reshaped by analogy to P *ənīpi* 'elm,' *wətohpī* 'alder').

The reconstruction of PA **šenta* 'evergreen tree' finds confirmation in what appears to be an early borrowing from Algonquian in Dakota or Santee Sioux, since Riggs records Dakota *šī'tá* 'tamarack tree.' The semantic change in Munsee Delaware is a specialization accounted for by the fact that hemlock is the most common conifer in the Munsee country.

43. PA **ani·pya* 'elm' (refers chiefly to *Ulmus americana*), pl. **ani·pyaki* AN. F *ani·pi* (pl. *ani·pye·ni* INAN), M *ane·p* (pl. *ane·pyak* AN), O *ani·p* (pl. *ani·pi·k* AN), S *haniipi* (pl. *haniipiye* INAN), P *ənīpi* (pl. *ənīpəyak* AN) (See map 6).

44. PA **wato·xpyi* 'alder' (refers originally and chiefly to the 'speckled alder,' *Alnus rugosa*, formerly *A. incana*), pl. **wato·xpyali* INAN. M *wato·p*

MAP No 7



(pl. *wato·pyak* AN), C and Cw *ato·spiy* (pl. *ato·spiya* INAN), MSj *ato·špiy* (pl. *ato·špi·č*), O *wato·pp* (pl. *wato·ppi·n* INAN), P *wàtohpi* (pl. *wàtohpəyal* INAN) (See Map 7).

45. PA **wi·kopiminšya* 'basswood, American linden' (*Tilia americana*), pl. **wi·kopiminšyaki* AN. F *wi·kopimiši* (pl. *wi·kopimišye·ni* INAN), M *we·kopemeh* (pl. *we·kopemehsyak* AN), O *wi·kopi·mi·šš* (pl. *-i·n* INAN), S *wiikopimiiši*, MI *wikopiminši*, P *wikəpimisi* (pl. *wikəpimisəyak* AN).

The term is a derivative of PA **wi·kopyi* 'fibrous, building, or basswood bark' (a compound of PA **wi·k-* 'shelter, house, dwell,' **-ekop-* 'bark') and PA **-eminšy-a* 'tree; originally a fruit, berry, or nut bearing tree,' with the reflexes F *-emiši*, M *-emehsy-* (singular *-emeh*), O *-imi·šš*, S *-imiši*, MI *-iminši*, Dm *-imənši*, N *-imis*, and P *-əmisi*. From the historical point of view this noun-final has been phonetically unstable, a feature which goes back to PA times and is the result of the ancient fluctuation of **i·* ~ **i*, which is evident in PA **mi·n-a* 'berry' and the noun-final **-min-a* 'berry of a certain type,' and PA **ši·ʔši·p-a* 'duck' and the noun-final **-eʔšip-a* 'duck of a certain species.' Consequently the forms do not all match in the various languages. Ojibwa has apparently reshaped the element with loss of *n* and compensatory vocalic lengthening, having *-imi·šš* for expected **-iminš*, whereas Miami and Delaware have preserved the original **nš* cluster. The instability of the vocalic length is reflected in the eastern languages by the splintering of the element into a series of contrasting sets, so that Dm has *-imənši*, *-imonši*, and P has *-əmisi*, *-əmosi*, *-əməsi*, and *-osi* (See Map 7).

46. PA **aʔsena·minšya* 'sugar maple' or 'rock maple tree' (*Acer saccharum*), (PA **aʔsenyi* 'rock, stone,' F *aseni*, pl. *asenye·ni*; PA **-eminšy-a* 'tree'). F *asena·miši* (pl. *asena·mišye·ni* INAN), O *assina·mi·šš*, Dm *ahsəná·mənši* (pl. *ahsəna·mánšəyak* AN), MI *se·naminši*, A *sənōmosi*, P *ssə̀nαw* (reshaped with noun-final *-αw* 'tree exuding sticky sap,' as in P *pkʷə̀hαw* 'balsam fir tree') (See Map 6).

47. PA **waʔša·we·minšya* 'American beech' (*Fagus grandifolia*), (PA **-eminšy-a* 'tree'; see examples no. 45 and 46).

M *sa·we·meh* 'beech' (pl. *sa·we·mehsyak*; reshaped initial with M *s* for expected M *ʔs*, O *šš* < PA *ʔš*, like M *suasek* 'eight,' O *niššwa·sswi* < PA **neʔšwa·šika*), O *ašša·we·mi·šš* (pl. *ašša·we·mi·šši·k*), Dm *waša·wé·menši* 'beech tree' (pl. *waša·we·mánšəyak*). P *wačəwimisi* 'beech' is a different form and does not match (See Map 8).

48. PA **keno·šye·ʔsiwa* 'willow,' generic for all species, shrubby or arborescent (root PA **keno·šye-* 'willow,' PA **-eʔs-* quasi-diminutive, as in PA **name·ʔsa* 'fish' > M *name·ʔs*, P *nəməhs*).

M *kenu·si·ʔs-* in *kenu·si·ʔsekapaweh* 'willow' (M *kenu·si-* 'willow,' *-iʔs-* quasi-diminutive; reshaped or reformed with the ending *-ekapaweh*, a complex of M *-aweh*, *-awe·hsy-* 'tree,' and perhaps an assimilative form of M *-ekop-* 'bark'), P *kanósehso* 'willow' (pl. *kanósehsəwak*; root P *kanose-* 'willow,' *-əhs-* 'living creature,' a quasi-diminutive < PA **-eʔs*, *-o* animate final < PA **-iwa*).

PA **e* ~ **a* > P *ə* ~ *a*, as in PA **elen-* 'ordinary, common' > P *alən-*; and in P *nahs* 'three' < PA **neʔθwi*. PA **ʔs* > P *hs* following **e·* and **e* but > P *ss* following **i·* (as in examples no. 8 and 41). Compare Dm *kano·še·sa·hkw* 'willow.'



49. PA **mi·twiya* 'quaking aspen, American poplar' (*Populus tremuloides*). F *mi·twiya* 'quaking aspen,' C and some Cw dialects *mi·tos* "poplar" (dimin.; PA **wi* > C *o* after a nonsyllabic; term probably refers to *P. tremuloides*), MSj *mi·toš* 'quaking aspen,' Malecite *mit* 'quaking aspen' (pl. *mitiyək*, with loss of postconsonantic *w*), N *meetwe* "poplar" (Genesis 30:37, Hosea 4:13; very probably refers to *P. tremuloides*).

None of the above languages show evident semantic change. However, Shawnee has *miitwaʔki* "red root willow" and *miitwaʔkiiθa* "water willow tree," both of which show reshaped or reformed endings and need more accurate species identification. The apparent change of meaning to "willow" in Shawnee is semantic change due to the early migration of the speakers of this language to regions south of the range of the quaking aspen, probably to the valleys of the Ohio and Cumberland rivers. The quaking aspen is a northern species, but it extends southward to occupy eastern and central Iowa, the northern halves of Illinois, Indiana, Ohio, Pennsylvania, and New Jersey, and the Appalachian Mountains south to southwestern Virginia as its southern limit. Although it is absent on the Great Plains, it extends southward in the Rocky Mountains to eastern Utah, Colorado, and northern New Mexico. The range of this species and the semantic change in Shawnee add some supporting evidence to the conclusions to be set forth.

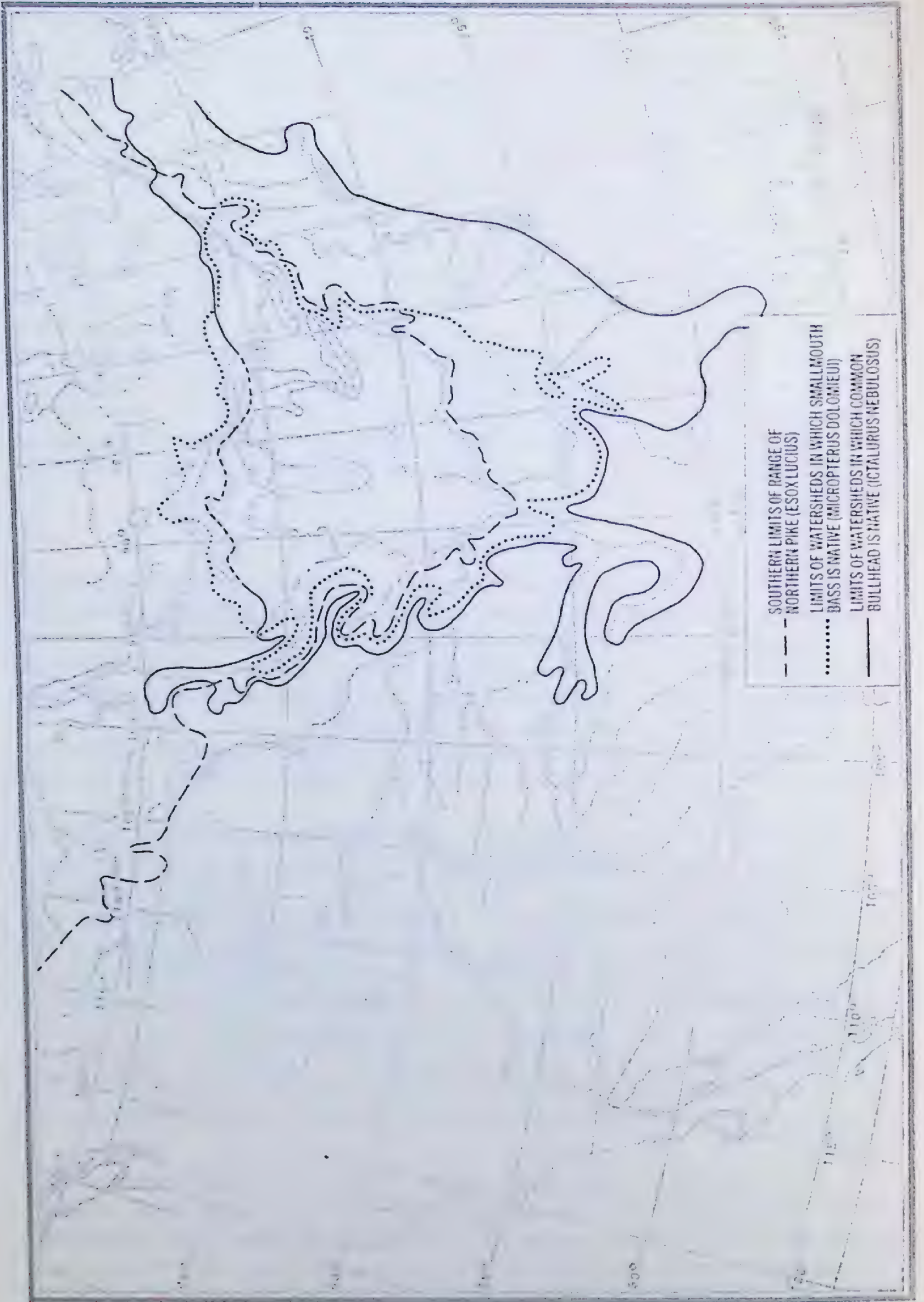
EVIDENCE OF FISH NAMES

50. PA **aʔšikanwa* 'black bass' (refers originally and primarily to the 'smallmouth bass, smallmouth black bass, achigan, or tiger bass,' *Micropterus dolomieu* Lacepède; although in the Mississippi River basin some Algonquian languages (Fox, and so on) also apply the term to a similar and relatively more southern species, the 'largemouth bass,' *Micropterus salmoides*). One local term, *achigan*, is an obvious loan from Algonquian.

F *ašikanwa* 'black bass,' M *aʔsekan*, O *aššikan*, S *aʔšika*, P *ásikan* (pl. *ásikanak* AN; contrasting with P *ásikan* 'sock, footwrap' INAN, pl. *ásikanal*, from PA **ašikanwi* 'sock').

This species is not native in Maine, but the Penobscots know of the existence of this fish in Lake Champlain and upper St. Lawrence waters. Modified forms of the same term are found in Penobscot, such as the diminutive *ásikanəss* 'common sunfish' or 'pumpkinseed,' *Lepomis gibbosus* (pl. *asikánəssak*) and *məlásikan* 'striped bass' or 'rockfish,' *Roccus saxatilis*, a species confined to the Atlantic coast from the St. Lawrence to the Gulf of Mexico (P *məl-* 'grey'). The smallmouth bass is not native east of the Appalachian Mountains except in the headwaters of the Ocmulgee and Chattahoochee rivers, but it extends northward to Lake Champlain, to the upper St. Lawrence drainage, and to slightly north of Lake Nipissing. It has been introduced into the Lake of the Woods in northern Minnesota and Ontario and very widely elsewhere (See Map 9).

51. PA **name·kwa* 'lake trout,' and dimin. PA **name·kwehsa* ~ later **name·kohsa* 'lake trout,' also called 'lake charr, salmon trout, togue, touladi, namaycush' (*Cristivomer namaycush* or *Salvelinus namaycush* Walbaum). The scientific term and at least one of the local names is an obvious loan from Algonquian. In Maine the fish is usually called 'togue.' The term is confined to this species alone, and all languages agree.



This ancient species, one of the largest of freshwater fish, is confined to boreal North America, extending from the northern borders of the United States to the Arctic Circle. Its range lies almost entirely within the limits of the Pleistocene glaciation. It is not found in Newfoundland and is not native in the Columbia River basin or Vancouver Island. Since this fine fish occurs only in deep, cold lakes with rocky bottoms and in a few cold streams, it has an irregular distribution which calls for detailed investigation. Lake trout are found in all the Great Lakes; they are prevalent in lakes Huron, Michigan, and Superior but less common in Lake Erie where they are confined to the deeper eastern portion, and reach their best development in lakes Huron, Michigan, and Superior. In Lake Superior there is a special variety, the Siscowet (*Cristivomer namaycush siscowet* Agassiz), which is paler. The lake trout is more common in the eastern portion of Canada and is found as far north as Payne Lake and Lake Minto in Ungava. Further west it is less common, occurring sparsely in the Mackenzie and Yukon rivers.

Therefore, we are largely concerned with the southern portion of the range where localities of occurrence are scattered except for the five Great Lakes. Available distributional data are incomplete, but the facts ascertained as to the original presence of the lake trout in the southern part of its range are as follows: (1) Idaho: Henry Lake (Fremont County), (2) Montana: St. Mary Lake (Glacier County), Glenn Lake (Lincoln County), and a few other smaller lakes in the same area; (3) Alberta: Waterton Lake (in extreme southwest), Minnewanka Lake (near Banff), Lesser Slave Lake; (4) Saskatchewan: Swan Lake, Glacier Lake; (5) Manitoba: Lake Athapapuskow, Lake Winnipeg (chiefly in the northern, deeper part), West Hawk Lake; (6) Minnesota: Greenwood Lake (Lake County), Seagull Lake (Cook County), Trout Lake and Pokegama Lake (Itasca County), and a few other small lakes in the same area; (7) southern Ontario: Rainy River, Lake Nipigon, Lake Nipissing, Lake Simcoe, Opeongo Lake (in Algonquin Park); (8) Wisconsin: Trout Lake (Vilas County), and a few other lakes in the northern part, (9) Michigan: Lake Gogebic (Gogebic County), Manistique Lake (Mackinac County), and a few other lakes in the northern peninsula only; (10) New York: Cayuga Lake, Lake George, Lake Champlain; (11) southern Quebec: Lac des Neiges (in Laurentide Park), Tchitogama Lake, Chibougiche Lake, Lake Chibougamou, Obatogamau Lake, Betsiamites River, Restigouche River (Gaspé); (12) Vermont: Lake Dunmore (Addison County), Lake Memphremagog, Lake Willoughby, Caspian Pond, Bellwater Pond in Barton, Echo Pond, Glover Pond (Orleans County), Maidstone Lake (Essex County); (13) New Hampshire: Newfound Lake, East Pond in Enfield, Mascoma Lake, Squam Lake (Grafton County), Lake Winnepesaukee, Winisquam Lake (Belknap County); (14) Maine: Thompson Pond (Androscoggin County), Wilton Pond (Franklin County), Moosehead Lake, Schoodic Lake, Sebec Lake, Haymock Lake (Piscataquis County), Mattamiscontis Lake, Cold Stream Pond in Enfield (Penobscot County), Phillips Lake, Branch Pond, Beech Hill Pond, Tunk Lake (Hancock County), St. John and Allagash rivers, Eagle Lake (Aroostook County); (15) New Brunswick: headwaters of St. Croix River, St. John River headwaters above Grand Falls, Oromocto Lake, and other lakes in southwestern New Brunswick.

The lake trout was introduced into Eaglesmere Lake, Sullivan County, Pennsylvania, about 1887, but it is not native in any lake in that state. It is

absent in the central and southern districts of New England and is not found to any extent in the White Mountain region, Androscoggin waters, or Rangeley Lake area. It is not found in the interior of the lower peninsula of Michigan. In Wisconsin the lake trout is confined to Lake Michigan and a few small lakes in the northern part; it is wanting in Green Lake and lakes Wingra, Geneva, Mendota, and Pepin and absent in Lake Winnebago, which, despite its large size, is quite shallow. It is not found in Lake of the Woods, and occurs in only a few small lakes in the north-central portion of Minnesota (See Map 8).

M *name·koh* (dimin.; pl. *name·kohsak*), C and Cw *name·kos* (dimin.), MSj *name·kwoš* (dimin.), O *name·koss* (dimin.), A *namákw*, P *nàmek^w* (pl. *nàmek^wak*; dimin. *nàmek^wass*). A and P are the only languages that have preserved the term in its original non-diminutive form.

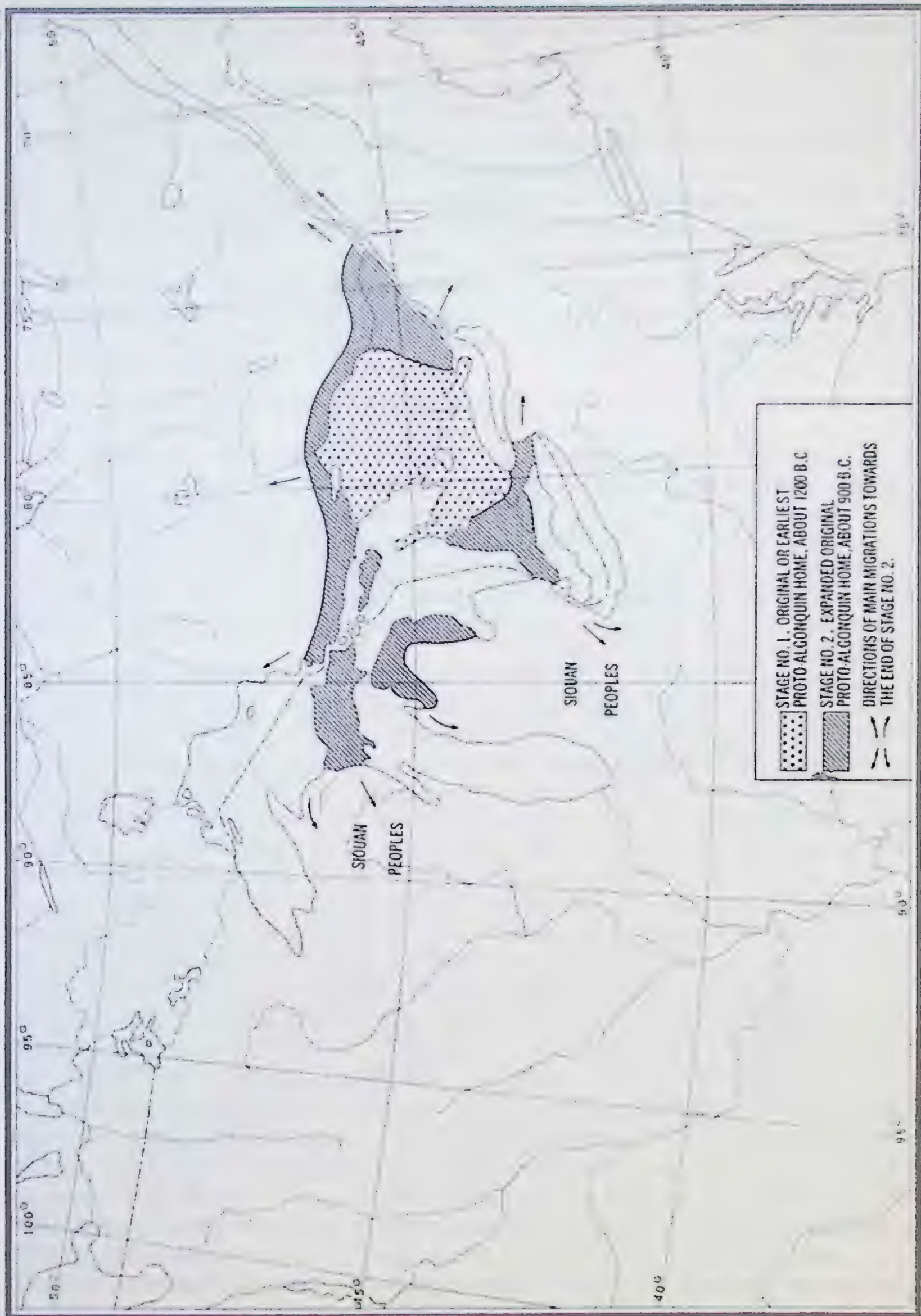
The word is of great antiquity and is a formative of the deverbal medial and noun-final PA **-ame·kw-* 'fish of a particular kind or species' plus the animate final ending **-a* and the prefix of universal existence PA **ne-* (as in PA **nepyi* 'water,' **na·pe·w-* 'male, man'). The term is paired with PA **name·wa* 'lake sturgeon' (*Acipenser fulvescens*), with the supporting forms F *name·wa*, M *name·w*, O *name·*, C and Cw *name·w*, but MSj *name·w* which in this dialect is applied to both the 'lake sturgeon' and 'Atlantic sturgeon' (*Acipenser oxyrinchus* Mitchill), and there are no reflexes in the eastern Algonquian languages since the lake sturgeon is found only as far east as the upper St. Lawrence waters; it is formed from the contrasting noun-final PA **-ame·w-* 'fish,' the animate final **-a*, and the prefix **ne-*. From the same primary elements comes the diminutive PA **name·ʔsa* 'fish,' with quasi-diminutive PA **-eʔs-*, posited by F *name·sa*, M *name·ʔs*, C and Cw *name·s* ('fish' in Cw about James Bay, but 'small lake sturgeon' elsewhere), P *nàmehs*, Dm and D *namé·s*.

52. PA **kenwešye·wa* ~ later **kenošye·wa* 'northern pike' (*Esox lucius* Linnaeus).≠ This species is not native east of the Appalachian Mountains or south of the Ohio River.

F *keno·še·wa*, M *kenu·si·w*, C and Cw *kinose·w* ('pike' in Cw dialects south and west of James Bay, but generic 'fish' in C and all other Cw dialects), MSj and MSs *činoše·w*, O *kino·še·*, MI *kinoša* (pl. *kinošaki*), but P *k^wánose* 'chain pickerel' (*Esox niger* Le Sueur) (pl. *k^wánosak*; with metathesis of **w*, since the only clusters with second member *w* permitted in P are unit phoneme *k^w* and *-hw-*, only the former occurring in word initial). Otherwise PA **-we-* > **o* between nonsyllabics in late PA times after the separation of the eastern Algonquian languages, as shown in PA **eškwete·wi* ~ **eškote·wi* 'fire,' F *aškote·wi*, C *iskote·w*, O *iškote·*, but P *sk^wàte*.

Concerning late PA **kenošye·wa*, only C, Cw, and MS preserve the original short **o* < **-we-* between consonants, whereas F, M, and O show a secondary lengthening of the vowel to *o·* which occurs elsewhere in the second syllables of words in these languages. The contracted stem **kenošye·w-* was in phonemic contrast with PA **keno·šye·-* 'willow' (see example no. 48), and when lengthening occurred in the M form, the M term for 'willow' was reshaped or reformed with a new noun-final *-ekap-aweh*.

Semantic changes have taken place with some departures from the original meaning 'northern pike.' The Penobscot transferred the term to a very similar species when they migrated beyond its habitat, and most Cree dialects have generalized the meaning to 'fish' (See Map 9).



53. PA **wa·hsiwa* and dimin. PA **wa·hsehsiwa* 'brown bullhead, eastern catfish, horned pout' (*Ictalurus nebulosus*, or older *Ameiurus nebulosus* Le Sueur) (with PA dimin. *-*ehs*-, the form more commonly used in the various languages).

F *wa·sesi·ha* (with living F dimin. -*i·h*-, as in examples no. 6, 10, and 27, superadded to old F dimin. -*es*- < PA *-*ehs*-); M *wa·sew* (reshaped, for expected **wa·hsew*, a non-diminutive form, similarly to M *seko·h* 'weasel' for expected **sehko·h*; see example no. 36); O *wa·ssissi*, *wa·ssi* ~ (dimin.; pl. *wa·ssissi·k*, *wa·ssinyak*); P *wásəssə* (dimin.; pl. *wásəssəwak*; PA **hs* > P *s* in word medial, as in example no. 20, but > P *ss* in word final, as in PA **no·hkomehsa* 'my grandmother' > P *nòhkəməss*).

The term is uniformly applied in all languages to the same species. This is the only species of catfish found in New England, and the central languages have different terms for other varieties of the catfish family (See map 9).

DISCUSSION

Evidence to support the maps of distribution of the various species is given in the bibliography of natural history references at the end of this article. The older sources are emphasized in an attempt to establish original ranges which are often no longer true. In many cases the salient points that are pertinent to this study have been epitomized following the reference. Very frequently data are found to be incomplete, inaccurate, or even contradictory. Moreover, not all references consulted have been cited, and a few of my own observations have been included.

Superficial inspection of the distributional maps shows that the geographical ranges of most species centre around the Great Lakes region, and specifically about the eastern portion. More careful scrutiny of the multiple intersections reveals that the primordial home of the Algonquian peoples lay chiefly between Georgian Bay and Lake Ontario, embracing the region bordered on the north by Lake Nipissing and the Mattawa River, on the east by the middle Ottawa River, and on the south by the northern shore of Lake Ontario, the upper course of the Grand River, and the Saugeen River. The districts about Lake Muskoka, Lake Simcoe, and Scugog and Rice lakes were centrally located. Of the approximately fifty species for which Proto-Algonquian linguistic terms can be reconstructed, less than half have any distributional significance or relevance to the problem. These were all originally found in this area or on its immediate borders. No other locality satisfies the ecological requirements.

The primeval home was a region abounding in lakes and was well supplied with a large variety of fish, waterfowl, and game animals. It lay between the almost strictly coniferous forests to the north and the deciduous woodlands to the south. That the Proto-Algonquians lived in a mixed-forest zone is evident from the frequent use of the two contrasting noun-finals in many tree names, PA *-*a·ntakw*- 'evergreen tree, conifer' and *-*a·xkw*- 'wood; hardwood or deciduous tree.' The relatively southern species of deciduous trees, like the white ash, sugar maple, basswood, and beech, extend more or less only slightly farther north than the Algonquian homeland, whereas northern conifers, like the white spruce and tamarack, were found commonly only to the southern borders of the original home or slightly beyond.

The original home lay at the southern limit of the woodland caribou, which extended into the upper Ottawa valley just to the south of the Mattawa River and Lake Nipissing, and westward to Manitoulin Island, Sault Ste. Marie, and the northern part of the lower peninsula of Michigan. The moose ranged somewhat farther southward and occupied all the area of the Proto-Algonquian residence. When the ancestors of the Delawares and southern New England Algonquians migrated south of the range of the caribou they transferred the term for that animal to the deer, and correspondingly the ancestors of the Miami in their southward movement applied the term for the moose to the deer. In the east of North America the wood bison was largely limited to deciduous forests and was found on the southern borders of the Algonquian 'Urheimat' in extreme southern Ontario, more plentifully in the adjoining regions of western New York, and on the flatlands of southern Michigan and northern Ohio and Indiana. Insufficient information is available on the Algonquian languages of the western Plains, but many semantic changes are to be expected regarding the terminology of fauna and flora. An interesting example is provided in the fact that when the Arapaho of the central and southern Plains migrated far from the range of the caribou they transferred the Proto-Algonquian term for the woodland caribou to the bighorn sheep. Both beasts have large, prominent horns and a similar fur coloration.

The raccoon and porcupine lived throughout the entire original Algonquian home, but the former, a relatively southern species, did not subsist much farther to the north originally and seems to have extended its range both northward and westward in the past two or three centuries. The porcupine, an essentially northern animal, had a range extending somewhat farther to the south.

The harbour seal is of special interest. Although it is found chiefly on the shores of both oceans and the Hudson and James bays, the seal ascends large rivers for long distances above tidewater. The harbour seal is the only seal that is common on the eastern coast of the United States. At present this seal ascends the St. Lawrence waterway only as far as Tadoussac and Trois Pistoles. However, in aboriginal times its ascent penetrated much farther into the interior along the upper St. Lawrence River and affluent streams. As late as the nineteenth century there are three or four records of seals being taken on Lake Champlain (Kirk; Miller; Thompson) and on at least one occasion on Onondaga Lake near Syracuse, New York, which has a stream connection with Lake Ontario (Miller). In former times seals were commonly found on the shores of Lake Ontario (DeKay; Downing; Anderson), but Niagara Falls served as a barrier to further penetration along the Great Lakes system. Seals also ascended the Ottawa River as far as the present city of Ottawa (Anderson; Downing), where the Chaudière Falls limited their range. At present many inland lakes throughout the Hudson Bay drainage are inhabited by this seal, but the distributions of many other species show that these localities lie well outside any possible original Algonquian homeland so far in the north. The harbour seal, therefore, was found on the southern margin of the primeval Algonquian home; the ranges of the harbour seal, the bobwhite, and the wood bison show that the northern peninsula or the northern part of the southern peninsula of Michigan could not have been the site of the earliest Algonquian residence. The western half of New York State is eliminated by the absence of the woodland caribou and of the white spruce.

Of the four species of fishes definitely known to the Proto-Algonquians, all are freshwater varieties. The northern pike is widespread in its distribution and therefore provides the least information. It is not found as a native fish in the Atlantic watershed south of the St. Lawrence drainage and is absent south of the Ohio River. When the ancestors of the Abenaki-Penobscot migrated to the east they transferred the term for this fish to a very similar species, the chain pickerel. The lake trout, a favourite fish of the early Algonquians, is not found south of the Great Lakes, Cayuga Lake, Lake George, and Lake Winnepesaukee. It is found in only a few inland lakes of northern Wisconsin, the upper peninsula of Michigan, and northern Minnesota, and it reaches its maximum development in the waters of Lake Huron. The brown bullhead prefers warm water that is muddy or shallow, and consequently it is most abundant in the lakes and ponds of southern Ontario. Its northern range extends to a line south of Sault Ste. Marie, Lake Nipissing, the Mattawa River, and the Ottawa River south of Mattawa. The smallmouth black bass has a very similar range to the brown bullhead, except that it extends northward to slightly beyond Lake Nipissing and does not occur east of the Appalachian Mountains except for the headwaters of some streams in upper Georgia and western North Carolina. The distributions of these fishes provide additional reasons for pinpointing the earliest Algonquian residence to southern Ontario rather than to a more western portion of the Great Lakes region.

For the sake of discussion, alternative areas must be examined as possible locations of the primordial Algonquian home. No part of the Atlantic coast east of the Appalachians merits consideration except possibly northern New England and New Brunswick. However, these regions are not satisfactory because of the absence of the smallmouth bass, the northern pike, the wood bison, and the bobwhite. The only other area requiring serious consideration besides southern Ontario is northern New York State, comprising a region bounded on the north by the St. Lawrence River and the lower Ottawa River, on the east by the Green and Berkshire mountains, on the south by the Mohawk River, and on the west by Lake Ontario and lakes Oneida and Onondaga, and including Lake George and Lake Champlain. All species that have reconstructible linguistic terms are found in either the northern or southern districts of this area except the wood bison and the woodland caribou. That the wood bison was found on its western borders suffices for this requirement. However, there are several weighty objections against this conjecture. First, the nearest caribou were a few strays from Maine in extreme northeastern Vermont; essentially caribou ranged considerably outside the area under consideration. Second, the Oldsquaw was rare in this area and appeared as an uncommon migrant only on the eastern shores of Lake Ontario. Finally, the region does not form a cohesive geographical, topographical, or ecological unit; the northern and southern portions are quite distinct with intervening high mountainous areas connected only by the Lake Champlain and St. Lawrence waterways.

SUMMARY

In order to allow for possible undetermined changes in the distribution of fauna and flora in the prehistoric period, and partly in order to account for alternative interpretations of the linguistic facts themselves, the earliest original

home is diagrammatically represented as Stage Number 1 (*See* Map 10) and an expanded area of occupancy of slightly later date, which certainly includes the entire Algonquian homeland, is characterized as Stage Number 2. To these the tentative dates of 1200 B.C. and 900 B.C., respectively, are assigned as suppositions to serve as a basis for further discussion. The hypothetical estimates for the times of these two periods are based only on impressions of the history of the Algonquian languages as a whole, so far as it is known at present. The directions of the main streams of migration subsequent to Stage Number 2 are indicated on the map. At this period those speakers of Algonquian who by preference pursued the caribou went northward or to the northwest, while those who preferred to earn part of their livelihood by hunting bison migrated to the south, southwest, and southeast. The ancestors of the Cree, Montagnais, and Naskapi were certainly among the former.

There is no proof that the Proto-Algonquian language was ever an absolutely uniform mode of speech or that all terms labelled as PA are necessarily of equal antiquity. An expanded early home may more readily account for the existence of PA words for some more marginal species, and therefore these archetypes may be of slightly later date. The apparent reality of linguistic doublets and fluctuating forms for such species as the Golden Eagle, Nighthawk, and others, lends support to this concept.

CONCLUSION

About fifty natural history terms are determined in the Proto-Algonquian language. These are reconstructed, using principles of uniform sound change and systematic patterning of phonetic correspondence, from the forms that survive in the various descendent eastern and central Algonquian languages. The western or Plains languages are disregarded largely because inadequate data are available. Doubtlessly there are some natural history names that have escaped attention, and others are omitted because of insufficient information or because they are unrecorded in both the eastern and central languages.

Fortunately many terms refer to a particular species and are found in all or most languages without change in meaning. In other examples only minor and transparent semantic changes have occurred because of the migration of a body of Algonquian speakers beyond the range of the species. The original designation can be accurately inferred from the group of the other languages in perfect agreement. In this manner a considerable number of species of birds, mammals, trees, and fish known to the Proto-Algonquian people are determined by projection from the linguistic archetypes that can be reconstructed. Numbers of these, however, have generic significance or have ranges that are too extensive to be relevant to this study. On the other hand, about twenty reconstructible terms denote species that have sufficiently characteristic and limited geographical distributions to contribute valuable information germane to the problem under consideration. The original ranges of these species during the period of earliest European contact are investigated so far as is feasible and are recorded on maps to determine foci of intersection. Alterations of range in prehistoric times because of climatic or other conditions remain an uncontrolled

factor conducive to error, but these alterations are believed to be trivial when they are compared to the enormous changes that have taken place since the advent of Europeans.

The earliest residence of the speakers of Proto-Algonquian is ascertained by the multiple intersections of the distributional lines of significant species. The original home of the Algonquian peoples lay in the region between Lake Huron and Georgian Bay and the middle course of the Ottawa River, bounded on the north by Lake Nipissing and the Mattawa River and on the south by the northern shore of Lake Ontario, the headwaters of the Grand River, and the Saugeen River.

NOTES

- ¹ Harper, Francis. "Changes in Climate, Faunal Distribution, and Life Zones in the Ungava Peninsula," *Polar Notes*, Dartmouth College Library, Hanover, N.H., no. III, Nov. 1961. Also, Peterson, Randolph L. "North American Moose," p. 46, fig. 8, Toronto, 1955.
- ² Abbreviations used are as follows: PA for Proto-Algonquian, F for Fox, C for Plains Cree, Cw for Swampy or Woodland Cree, M for Menomini, MSj for Lake St. John dialect of Montagnais, MSs for Montagnais of Seven Islands, O for Ojibwa, S for Shawnee, MI for Miami, D for Unami dialect of Delaware, Dm for Munsee dialect of Delaware, N for Natick or more properly Massachusetts, P for the Penobscot dialect of Abenaki, A for St. Francis dialect of Abenaki; * indicates reconstructed form, # marks glosses with semantic change, ~ varies or alternates with, pl. for plural, dimin. for diminutive, < is derived from historically.
- ³ Fox forms cited were collected by myself from Horace Whitebreast and Daniel Youngbear of Tama, Iowa, in September 1962. The published texts of Jones and Michelson show a paucity of natural history terms.
- ⁴ Munsee terms were collected from Nicodemus Peters in June 1938, at Smoothtown, Six Nations or Grand River Reserve, Ontario.
- ⁵ Collected in July 1934 (from Andrew Gunner), and in August 1963 and September 1964 from Gabriel Kurtness and Marie Raphail.
- ⁶ From many informants at intervals from August 1932; chiefly Andrew Dana, Newell Gabriel, Louis Lolar, Sylvia and Francis Stanislaus, Emma Nicoliar Ranco.
- ⁷ Bloomfield, Leonard. *The Menomini language*, New Haven (Yale Univ. Press), 1962. Also, *Menomini texts*, (Pub. of The Am. Ethnol. Soc., vol. 12), New York, 1928.
- ⁸ Bloomfield, L. *Eastern Ojibwa* (Univ. of Michigan Press), Ann Arbor, 1958.
- ⁹ Baraga, Frederic. *Dictionary of the Otchipwe language*, Cincinnati (first ed.), 1853.
- ¹⁰ Bloomfield, L. *Sacred stories of the Sweet Grass Cree*, Bull. 60, Nat. Mus. Canada, Ottawa, 1930.
- ¹¹ Lacombe, A. *Dictionnaire et grammaire de la langue des Cris*, Montreal, 1874.
- ¹² Watkins, E. A. *A dictionary of the Cree language* (2nd ed. by R. Faries), Toronto, 1938.
- ¹³ Voegelin, C. F. *Shawnee stems and the Jacob P. Dunn Miami dictionary* (Indiana Hist. Soc., vol. 1, parts 8-10), Indianapolis, 1939-40.
 Additional Shawnee forms are taken from some typed notes supplied me by Voegelin.
 A few liberties have been taken with the Miami forms in order to standardize the orthography, such as changing Dunn's *ā* to *e*, *d* to *t*, and *z* to *s*.
- ¹⁴ Day, Gordon M. *A St. Francis Abenaki vocabulary*, Int. J. of America. Ling., 30: 371-392, 1964.
- ¹⁵ Bloomfield, Leonard. *Algonquian*. In H. Hoijer, *Linguistic Structures of Native America*, Viking Fund Pub. in Anthropol., no. 6, New York, 1946; p. 85-129.
 In PA reconstructions, ? replaces Bloomfield's *q* for the glottal stop phoneme; and PA **sk* is used to replace Bloomfield's **çk*, since no **sk* is otherwise provided for, and Ojibwa and Natick have *sk* as a reflex of PA **sk*; and **Xk* is used to represent a discrepant consonant cluster ending in *-*k*, which is not to be confused with the regular correspondence **xk*.
 A few Arapaho terms are from Salzmann, Zdeněk. *Arapaho V: noun*, Int. J. of America. Ling., 31: 39-49, 1965; as well as a few Arapaho notes which I collected in July 1935 from Oscar Grasshopper at Ethete, Wyoming.
- ¹⁶ The latter seems possible since M has *ape·hsahkyah* "brant" also.
- ¹⁷ In the Montagnais of Lake Mistassini and of Seven Islands (Moisie), *iline·w* is 'Spruce Partridge.'
- ¹⁸ Reconstructed from Dunn's *wāsanza* (p. 429) and Volney's *ahouēhsensa* 'bird.'
- ¹⁹ Correcting Bloomfield, *Language*, vol. 1, p. 155 (Dec. 1925).

NATURAL HISTORY REFERENCES

I. General

HARMON, DANIEL W. A journal of voyages and travels in the interior of North America. Andover (Flagg and Gould), 1820.

[*Elm* and *basswood* on upper and lower Red River (p. 140-141); *moose* and *woodland caribou* about Lake Nipigon (p. 159), Sturgeon Lake (p. 160), Isle a la Crosse Lake (p. 168), and Athabasca River (p. 170); *wood buffalo* along and between the Saskatchewan and Peace rivers (p. 416).]

HARPER, FRANCIS. Changes in climate, faunal distribution, and life zones in the Ungava Peninsula. Polar Notes, Occas. Pub. of the Stefansson Coll., Hanover (N.H.), no. 3, 1961.

URQUHART, FREDERICK A. Changes in the fauna of Ontario. Contrib. of the Roy. Ont. Mus., Toronto (1957).

[Excellent articles on the changes of the ranges of birds and mammals in Ontario, including one by L. L. Snyder on the "Changes of the Avifauna of Ontario," p. 26-42.]

II. Birds

BENT, ARTHUR C. Life histories of North American birds of prey. Pt. I, U.S. Nat. Mus., Bull. 167, Washington, 1937.

[Nesting range of *Golden Eagle* given (p. 293-315); extending in the *north* from Alaska (Ft. Yukon and Pt. Barrow) across to Quebec (Ft. Chimo and Anticosti Island); in the *east* to Nova Scotia, Maine (Sandy River Mountain), North Conway (N.H.), West Point (N.Y.), Appalachian Mountains (N.J., Pa., W. Va., Va.), western North Carolina (Weaverville), eastern Tennessee (Le Conte, Cumberland, and Chilhowee Mountains); in the *south* to northern Mexico (Chihuahua, Nueva Leon, Sonora, and Lower California); and in the *west* to Washington (Mt. Ranier and Cascade Mountains), Oregon (Ft. Klamath); most frequent in Montana, Arizona, and wilder portions of southern California (San Diego and Santa Barbara).]

BENT, ARTHUR C. Life histories of North American Woodpeckers. U.S. Nat. Mus., Bull. 174, Washington 1939.

[*Northern Pileated Woodpecker* (p. 171-189) breeds in *north* from Great Slave Lake, *south* to southern Pa. and W. Va., and southern Illinois and Missouri.]

BROUN, MAURICE. Hawk Mountain sanctuary. Nature Magazine 27:367-368, 1936.

[*Golden Eagle* at Hawk Mountain sanctuary, near Dreherstown, Pa., chiefly in migration during autumn. During the year 1935, counted 66 individual Golden Eagles at this locality.]

CHECK-LIST OF NORTH AMERICAN BIRDS. Prepared by a Committee of the American Ornithologists' Union, 5th ed., Baltimore, 1957.

[*Oldsquaw* (p. 87), North American breeding range from both coasts of Greenland, Parry Islands, Ellesmere Island, and the Arctic coasts of Alaska and Canada, south to northwestern British Columbia (White Pass), northern Manitoba (Churchill on west shore of Hudson Bay), and southern Labrador (Strait of Belle Isle); winters in North America on the Atlantic from southern Greenland and southern Labrador south on the Atlantic coast to South Carolina, centrally chiefly on the Great Lakes (but occasionally to Kentucky and Tennessee), and on the Pacific coast to southern Washington (occasionally to southern California).

Golden Eagle (p. 112) breeding range extends on the *north* from Alaska, northern Ontario, and Quebec (Ft. Chimo, Anticosti Island, and Gaspé); on the *east* to Nova Scotia (Colchester Island), northern Maine and N.H., Vt. and western Mass., and the mountains of Pa., W. Va., Va., western North Carolina, eastern Tennessee, and southern Ontario; *west* to California and northern Mexico, including western Texas, western Oklahoma, western Kansas, western Nebraska, and western South and North Dakota.

Ruffed Grouse (p. 128) resident in *north* from central Alaska, southern MacKenzie (south of Great Slave Lake), northern Ontario (south and west of James Bay), to southern Labrador (south of Hamilton Inlet); *east* to Nova Scotia and New Jersey; *south* in the Appalachians (northeastern Virginia, western North and South Carolina, northern Georgia, northeastern Alabama) to Tennessee and central Arkansas; and *west* to eastern Kansas, eastern Nebraska, central Iowa, and southern Minnesota, to western South Dakota, Wyoming, and Alberta.

Bobwhite (p. 140) resident in the *north* from eastern South Dakota, southern Minnesota, southern Wisconsin, southern Michigan, southern Ontario (Toronto, Port Hope), central New York, southern Vt. and N.H., to southwestern Maine (Fryeburg); *south* to northern Florida (Palatka, Gainesville), and the Gulf Coast of Louisiana; *west* to eastern Texas, Arkansas, northeastern Kansas, and eastern Nebraska.

Northern Pileated Woodpecker (p. 315) breeds in the *north* from extreme northeastern British Columbia, southern MacKenzie (south of Great Slave Lake), southern Manitoba, northern Ontario, central Quebec, and Anticosti Island; *east* to New Brunswick, Nova Scotia, western and central Massachusetts, western Connecticut, central New Jersey, and south-central Pennsylvania (not in southeastern portion); *south* to northeastern Ohio, northern Indiana and Illinois, and northern Missouri; and *west* to northeastern Kansas, Iowa, Minnesota, and western Alberta.

Southern Pileated Woodpecker resident from southeastern Kansas, central Missouri, southern Indiana, Kentucky, W. Va., Maryland, and southeastern Pennsylvania, south to Georgia, northern Florida, and the Gulf Coast; *west* to eastern Oklahoma.

Northern Raven or *Common Raven* (p. 377) ranges in North America on the *north* from Greenland, northern Canada, and subarctic Alaska; *south* to North Dakota and in Rocky Mountains to Mexico and Nicaragua, to Minnesota, Wisconsin, northern Michigan, central Ontario, southern Quebec, and Maine (including coast), and south in the Appalachian Mountains to northwestern Georgia.]

CHAPMAN, FRANK M. Handbook of birds of eastern North America. 6th ed., New York, 1904.

DEKAY, JAMES E. Zoology of New York, or the New York fauna. Pt. II, Birds; Albany (Carroll and Cook), 1844.

[*Golden Eagle* (p. 4), highlands of Hudson River, Lake Erie; *Pileated Woodpecker* (p. 184-185), "almost unknown in Atlantic district" of N.Y.; *Northern Raven* (p. 134), rare except in northern New York State; *Bobwhite* (p. 202-203), most of New York State and Mass.]

GODFREY, W. E., and A. L. WILK. Birds of the Lake St. John region, Quebec. Nat. Mus. Canada, Bull. 110, Ottawa, 1948.

GRINNELL, JOSEPH. The designation of birds' ranges. Auk 44:322-325, 1927.

GYLES, JOHN. Memoirs of odd adventures, strange deliverances, etc., in the Captivity of John Gyles, Esq. Boston (S. Kneeland and T. Green), 1736.

[For the year 1689 describes (p. 23) the *Golden Eagle* nesting on Mt. Katahdin and in the upper Penobscot Valley, Maine.]

HARPER, FRANCIS. Birds of the Ungava Peninsula. Univ. of Kansas Mus. Nat. Hist., Misc. Pub. no. 17, Lawrence (Kansas), 1958.

KNIGHT, ORA W. The birds of Maine. Bangor, 1908.

PETERSON, ROGER T. A field guide to the birds. 2nd revised ed., Cambridge (Houghton Mifflin), 1959.

SNYDER, L. L. On the distribution of the Golden Eagle in eastern Canada. Canadian Field-Naturalist 66: 39-41, 1949.

[Gives data on the Golden Eagle nesting on the upper Hamilton River and at the head of Lake Michikamau (Mishikamou) in Labrador, on the Koksoak River near Ft. Chimo and at the juncture of the Larch and Kaniapiskau rivers in extreme northern Quebec, on Coats Island in northern Hudson Bay, and at Repulse Bay in extreme northeastern Keewatin.]

SPOFFORD, WALTER R. Nesting of the Golden Eagle at Sugluk Inlet, Ungava, Quebec. *Canadian Field Naturalist* 73: 177, 1959.

[Gives data on the Golden Eagle nesting at Sugluk Inlet on the extreme northern coast of the Ungava Peninsula.]

TAVERNER, P. A. Birds of eastern Canada. *Can. Geol. Surv. Mem.* 104, Ottawa, 1919.

III. Mammals

ANDERSON, RUDOLPH M. Catalogue of Canadian recent mammals. *Nat. Mus. Canada, Bull.* 102, Ottawa, 1946.

[*Harbour seal* (*Phoca vitulina concolor* DeKay) recorded (p. 78) in the Ottawa River at the mouth of the Gatineau River near Ottawa in the year 1865, and also a few records in Lake Ontario; *eastern woodland caribou* (*Rangifer caribou caribou* Gmelin) recorded (p. 180) in Nova Scotia, New Brunswick, southern Labrador, Quebec, and Ontario; line of merger not known (p. 182) between *plains bison* (*Bison bison bison* Linnaeus) and extinct *eastern wood bison* (*Bison bison pennsylvanicus* Shoemaker), while surviving *wood bison* (*Bison bison athabasca* Rhoads) found in northern Alberta to the north side of Great Slave Lake.]

BARTRAM, WILLIAM. Travels through North and South Carolina, Georgia, East and West Florida. Philadelphia, 1791.

[In the year 1773 visited the Great Buffalo Lick, an area of three or four acres of saline deposit on the great ridge near present Philomath, Oglethorpe County, Georgia (p. 35, 39); but (p. 46) "The buffalo once so very numerous, is not at this day to be seen in this part of the country," although throughout Georgia he found (p. 322) "heaps of white, gnawed bones of the ancient buffalo."]

BURT, WILLIAM H., and RICHARD P. GROSSENHEIDER. A field guide to the mammals. Cambridge (Houghton Mifflin), 1952.

CAMERON, AUSTIN W. Mammals of southeastern Quebec. *In* The Provancher Society of Natural History of Canada (p. 20-86). Quebec, 1951.

[Gives present range of *harbour seal* (p. 54-55) up the St. Lawrence at Trois Pistoles.]

DEKAY, JAMES E. Zoology of New York, or the New York fauna. Pt. I, Mammalia; Albany (White and Visscher), 1842.

[*Harbour seal* (p. 53-55) found in the year 1823 in eastern Lake Ontario off Jefferson County, N.Y.; also Indian traders say seals formerly found on the shores of Lake Ontario; also New York Harbour and Passaic River in New Jersey.]

DOUTT, J. KENNETH. A review of the genus *Phoca*. *Annals of the Carnegie Museum*, 29: 61-126, 1942.

[*Harbour seal* in Seal Lake, Clearwater Lake, and others east of Hudson Bay.]

DOWNING, STUART C. A provisional check-list of the mammals of Ontario. *Roy. Ont. Mus. of Zool., Misc. Pub. no. 2*, Toronto, 1948.

[*Woodland caribou* (p. 11) "formerly ranged our north woods as far south as Lake Nipissing"; *harbour seals* (p. 11) "occasionally ascend the St. Lawrence River to Lake Ontario and the Ottawa River as far as Ottawa."]

FILSON, JOHN. The discovery, settlement and present state of Kentucke. Wilmington (James Adams), 1784.

[Account of the *wood bison* in Kentucky (p. 50-51).]

HALL, E. RAYMOND, and KEITH R. KELSON. The mammals of North America. New York (Ronald Press), 1959.

[Maps of distribution of *porcupine* (p. 782), *raccoon* (p. 885), *moose* (p. 1015), *caribou* (all species and subspecies, including reindeer lumped as *Rangifer tarandus caribou*, p. 1019), and *bison* (p. 1025).]

HARPER, FRANCIS. Land and fresh-water mammals of the Ungava Peninsula. *Univ. of Kansas, Mus. Nat. Hist., Misc. Pub. no. 27*, Lawrence (Kansas), 1961.

JONES, REV. DAVID. A journal of two visits made to some nations of Indians on the west side of the River Ohio, in the years 1772 and 1773. Burlington (N.J.), 1774.

[Account of the *wood bison* (p. 17) in the year 1772 on the West Virginia side of the Ohio River near the Little Kanawha.]

- KIRK, GEORGE L. The mammals of Vermont. Joint Bull. 2, Vermont Botanical and Bird Clubs, 1916.
[*Harbour seal* at Otter Creek, Lake Champlain drainage, in the year 1846 (p. 28-34).]
- LAWSON, JOHN. A new voyage to Carolina, London, 1709.
[Tutelos of the westward mountains about Roanoke, Virginia, have plenty of buffaloes (p. 48); in the year 1700 saw no buffalo in the eastern half of North or South Carolina, or along the Catawba River, and the buffalo "seldom appears amongst the English inhabitants," yet "some killed on the hilly part of Cape Fear River" (p. 115), apparently in what is now Alamance County, North Carolina, east of Greensboro.]
- LOGAN, J. H. A history of the upper country of South Carolina, from the earliest periods to the close of the War of Independence. (vol. I, all published), Columbia (Courtenay and Co.), 1859.
[Large herds of buffaloes in cane brakes and on prairie ridges around present Abbeville and Edgefield (p. 6, 15-16); bison still plentiful till about the year 1760 in upper south Carolina, but very scarce at the beginning of the Revolution. The range of bison in South Carolina lay chiefly west of the Broad River and the Fall Line from Augusta, Georgia, to Columbia, South Carolina, the buffalo being most common in Edgefield and Abbeville Counties.]
- MILLER, GERRIT S., JR. Preliminary list of the mammals of New York. New York State Mus. Bull. no. 29, vol. 6, Albany, 1899.
[*Harbour seal* in Onondaga Lake near Syracuse, N.Y., in the year 1882, ascending from Lake Ontario; and an unauthenticated record on Lake Champlain off Crown Point, N.Y., about the year 1894 (p. 355-356).]
- MILLS, ROBERT. Statistics of South Carolina, including a view of its natural, civil, and military history, general and particular. Charleston (Hurlbutt and Lloyd), 1826.
[*Wood bison* so numerous about Laurens, S.C., in the year 1750 when the first settlement was made that it was not uncommon for three or four men with dogs to kill from ten to twenty buffaloes in a day. They have entirely disappeared (p. 608).]
- OSGOOD, FREDERICK L., JR. The mammals of Vermont. J. of Mammalogy 19: 435-441, 1938.
- PALMER, RALPH S. The mammal guide. New York (Doubleday), 1954.
- PALMER, RALPH S. Late records of caribou in Maine. J. of Mammalogy 19: 37-43, 1938.
[*Woodland caribou* (*Rangifer caribou caribou*) till the year 1908 ranged from northern Maine south to the Moosehead Lake region and Hancock County on the coast (Ellsworth).]
- PALMER, RALPH S. (pers. comm.).
["The *Raccoon* probably has extended its range in the last 200 years. . . . It is reasonable to expect that, some time in the past, the *Harbor Seal* was distributed from salt up into fresh water until stopped by some physical barrier, as Niagara Falls."]
- PETERSON, RANDOLPH L. North American moose. Toronto (Univ. of Toronto Press), 1955.
[Excellent detailed study of original and present range of the *moose*.]
- PURCHAS, SAMUEL. Purchas His Pilgrimes. London, 1625.
[Gives the earliest English account (vol. 4, p. 1765) of the *wood bison* observed by Sir Samuel Argoll in the year 1612 on the Potomac River, at or near present Harper's Ferry (wrongly ascribed by some writers to Washington, D.C.).]
- RHOADS, SAMUEL N. The mammals of Pennsylvania and New Jersey. Philadelphia, 1903.
[*Wood bison* in Pennsylvania (p. 47-51).]
- ROE, FRANK G. The North American buffalo. Toronto (Univ. of Toronto Press), 1951.

SETON, ERNEST THOMPSON. Lives of the game animals. New York (Doubleday, Doran, and Co.), 1929.

[Distributions and maps of ranges of *porcupine* (vol. 4, pt. 2, map p. 607); *woodland caribou* (vol. 3, pt. 1, map p. 60); *moose* (vol. 3, pt. 1, map p. 160); *bison* (vol. 3, pt. 2, map p. 647, and discussion of *wood bison*, p. 639-717).]

SHOEMAKER, HENRY W. Extinct Pennsylvania animals. Pt. II, Altoona, 1919.

[Much fact and some questionable tradition on extinct mammals of Pennsylvania; *moose* (p. 11-35), *wood bison* (p. 64-104).]

SHOEMAKER, HENRY W. A Pennsylvania bison hunt. Middleburg (Pa.), 1915.

[*Wood bison* ranged east to present Northumberland and Carlisle and were numerous on the west branch of the Susquehanna River about Clearfield and Lock Haven.]

SPALDING, THOMAS. National portrait gallery of distinguished Americans, 1836.

[Spalding was told by Lachlan McIntosh that when he was a boy he saw 10,000 buffaloes within ten miles of Darien (vol. III, p. 2). Darien (formerly Iverness) is near the coast of Georgia in McIntosh County just north of the Altamaha River. McIntosh was a resident there from the age of eleven in the year 1736 until he left Georgia for Charleston in 1748.]

STORK, WILLIAM. An account of East-Florida. London (G. Woodfall), 1766.

[*Wood bison* ranged into the interior of East Florida (p. 19).]

THOMPSON, ZADOCK. History of Vermont, natural, civil, and statistical. Pt. I. Burlington (Vt.), 1853.

[*Harbour seal* south of Burlington on Lake Champlain in February, 1810 (p. 38); *moose* in northern Vermont (p. 49-50); also a good account of the *lake trout* in Vermont (p. 140-141).]

TOULMIN, HARRY. A description of Kentucky, in North America. London, 1792.

[Gives passages on the *wood bison* in Kentucky and the gradual extinction of the species there.]

IV. Trees

COLLINGWOOD, G. H., and WARREN D. BRUSH. Knowing your trees. American Forestry Assoc., Washington, 1955.

[Gives maps of "natural ranges" of *tamarack* (p. 59), *white spruce* (p. 67), *beech* (p. 181), *elm* (p. 231), *sugar maple* (p. 272), *basswood* (p. 295), and *white ash* (p. 311). These vary in degree of accuracy.]

GRIMM, WILLIAM C. The trees of Pennsylvania. Harrisburg, 1950.

[Gives the correct distribution of the *tamarack* in Pennsylvania (p. 83), in wet or boggy areas across the northern tier of counties, as far south as Mercer County in the west (Sharon), Centre County (Bellefonte and State College), and Monroe County in the east (north of Blue Mountain in the Poconos).]

GRIMM, WILLIAM C. The shrubs of Pennsylvania. Harrisburg, 1952.

[Gives (p. 105-106) the correct distribution of the *speckled alder* (*Alnus rugosa*, formerly *A. incana*) from southern Labrador to Saskatchewan, southward to New England, northern Pennsylvania, and southward in the mountains to Maryland and West Virginia, region of the Great Lakes, and west to Iowa.]

HOUGH, ROMEYN B. Handbook of the trees of the northern States and Canada. Lowville (N.Y.), 1907.

[More or less accurate distributional maps of the *tamarack* (p. 21), *white spruce* (p. 25), *elm* (p. 183), *sugar maple* (p. 325), *basswood* (p. 351), *beech* (p. 133), and *white ash* (p. 391).]

MATHEWS, FERDINAND S. Field book of American trees and shrubs. New York (Putnam), 1915.

[Distributional maps of *tamarack* (p. 408), *white spruce* (p. 408), *beech* (p. 421), *speckled alder* (p. 423), *elm* (p. 426), *sugar maple* (p. 434), *white ash* (p. 434), and *basswood* (p. 436). Some of these are inaccurate.]

MUNNS, E. N. The distribution of important forest trees of the United States. U.S. Dept. of Agriculture, Misc. Pub. no. 287, Washington, 1938.

[More or less accurate distributional maps of *tamarack* (p. 31), *white spruce* (p. 35), *beech* (p. 91), *elm* (p. 124), *sugar maple* (p. 152), *basswood* (p. 160), and *white ash* (p. 169).]

V. Fishes

BEAN, TARLETON H. Catalogue of the fishes of New York. New York State Mus. Bull. 60, Albany, 1903.

[*A. nebulosus* throughout the state (p. 87-89), *C. namaycush* recorded only in Cayuga Lake (p. 266-271), *E. lucius* only in Lake Ontario, Lake Champlain, and Lake George (p. 298-301), and *M. dolomieu* confined to St. Lawrence drainage and Lake Champlain (p. 486-490).]

COKER, ROBERT E. Studies of common fishes of the Mississippi River at Keokuk. Document 1072, Bull. U.S. Bur. of Fish., vol. 45, p. 141-225, Washington, 1930.

DEKAY, JAMES E. Zoology of New York, or the New York fauna. Pt. IV, Fishes, Albany (White and Visscher), 1842.

[*M. dolomieu* in Lakes Erie and Ontario, Oneida Lake, and Onondaga Creek (p. 28-30).]

EVERHART, WATSON H. Fishes of Maine. Maine Dept. of Inland Fisheries and Game, Augusta, 1950.

EVERMANN, BARTON W. The fishes of Kentucky and Tennessee: a distributional catalogue of the known species. Document 858, Bull. U.S. Bur. of Fish., vol. 35, p. 293-368, Washington, 1918.

[*E. lucius* only in the Ohio River in Kentucky, the southern limit; *M. dolomieu* in most streams of Kentucky and Tennessee, east only to the mountains of western North Carolina; *A. nebulosus* in most Kentucky streams, but only a few in Tennessee.]

FISH, MARIE P. Contributions to the early life histories of sixty-two species of fishes from Lake Erie and its tributary waters. Bull. 10, vol. 67, p. 292-398. U.S. Bur. of Fish., Washington, 1932.

[*C. namaycush* restricted to the deeper parts of Lake Erie, spawning on rocky shoals and reefs in depths of 77 to 90 feet in autumn, and eggs develop on the bottom of rocky caverns and hatch in late winter or early spring; *A. nebulosus* restricted to sheltered bays of Lake Erie and common in sluggish streams and ponds of the surrounding region; *E. lucius* not found in Lake Erie except at the mouths of certain creeks, but is common in weedy larger streams of the region; *M. dolomieu* very abundant along shores of Lake Erie.]

FORBES, STEPHEN A., and ROBERT E. RICHARDSON. Maps showing the distribution of Illinois fishes to accompany a report on the fishes of Illinois. Ill. State Lab. of Nat. Hist., Danville (Ill.) 1908.

[*A. nebulosus* locations given on map 54; *E. lucius* on map 62; and *M. dolomieu* on map 80.]

FORBES, STEPHEN A. On the general and interior distribution of Illinois fishes. Bull. of the Ill. State Lab. of Nat. Hist. vol. 8, no. 3, Danville, 1909.

FOWLER, HENRY W. A list of the fishes recorded from Pennsylvania. Revised ed., Commonwealth of Pa., Board of Fish Commissioners, Harrisburg, 1948.

[Gives lists of all species by county and watershed distribution, and indicates whether native or introduced.]

FOWLER, HENRY W. Fishes of South Carolina. Charleston Museum, Charleston, 1935. [*A. nebulosus* in Catawba River and other streams.]

HARLAN, JAMES R., and E. B. SPEAKER. Iowa fish and fishing. 2nd ed., 1951.

[*E. lucius* (p. 52); *A. nebulosus* (p. 92); and *M. dolomieu* (p. 108).]

- HARPER, FRANCIS. Field and historical notes on fresh-water fishes of the Ungava Peninsula and on certain marine fishes of the north shore of the Gulf of St. Lawrence. J. of Elisha Mitchell Scientific Soc., 77: 312-342, 1961.
- JORDAN, DAVID S., and BARTON W. EVERMANN. American food and game fishes. New York (Doubleday), 1903.
[*A. nebulosus* (p. 26); *C. namaycush* (p. 203) found in Lake Henry in Idaho, and distinguished from genus *Salvelinus* by a raised crest behind the head of the vomer, which is armed with teeth; *E. lucius* (p. 236); and *M. dolomieu* (p. 355-357).]
- KENDALL, WILLIAM C. The fishes of New England. Memoirs of the Boston Soc. of Nat. Hist., vol. 8, p. 1-103, Boston, 1914-1927.
[*C. namaycush* locations in Vermont, New Hampshire, and Maine (p. 11-13).]
- LA MONTE, FRANCESCA R. North American game fishes. New York (Doubleday, Doran, and Co.), 1945.
- LINDSEY, C. C. Problems in Zoogeography of the lake trout. J. of the Fisheries Res. Bd. of Canada, vol. 21, no. 5, p. 977-994, 1964.
[*Lake trout* given as *Salvelinus namaycush*, with genus *Salvelinus* rather than *Cristivomer*, reverting to the older classification of Walbaum and reflecting the differences of opinion of morphologists. Discusses the distribution of the species and its limitation to the region of Pleistocene glaciation and absence of the lamprey. Gives more or less detailed information on its regional distribution: absent in Newfoundland and not native in the Columbia River basin or Vancouver; for some states and provinces (i.e., Montana) specific bodies of water are named in detail, while for others data are incomplete.]
- PEARSE, A. S. The food of the shore fishes of certain Wisconsin lakes. Document 856, Bull. U.S. Bur. of Fish., vol. 35, p. 245-292, Washington, 1918.
[*A. nebulosus* (p. 254), *E. lucius* (p. 258), and *M. dolomieu* (p. 266) in Lakes Mendota, Wingra, Monona, and Waubesa near Madison, but *C. namaycush* absent.]
- PEARSE, A. S. The distribution and food of the fishes of three Wisconsin lakes in Summer. Univ. of Wisconsin Studies in Science, no. 3, Madison, 1921.
[*C. namaycush* found only in Lake Michigan; *M. dolomieu* found in Green Lake, and Lakes Wingra and Geneva.]
- SCOTT, W. B. Freshwater fishes of eastern Canada. Toronto (Univ. of Toronto Press), 1954.
[Significant remarks on the distributions in Canada of *C. namaycush* (p. 34-35), *A. nebulosus* (p. 66), *E. lucius* (p. 74-75), and *M. dolomieu* (p. 99).]
- TRAUTMAN, MILTON B. The fishes of Ohio. Columbus (Ohio State Univ. Press), 1957.
[Gives complete distributional maps, one of the first books on American fishes to do so. Classifies the *brown bullhead* as *Ictalurus nebulosus*, in the genus *Ictalurus* with the rest of the catfish family, rather than as *Ameiurus nebulosus* Le Sueur, and says the species was originally rare or absent in the southern third of Ohio and is almost never found in the Ohio River (p. 424-426). Gives the *smallmouth bass* (p. 486-489), the small-mouth black bass of others, as *Micropterus dolomieu* Lacépède, improperly since the Latin genitive ending should not be applied to a French personal name; nearly all writers have erred in spelling the French naturalist's name since he himself wrote it as Laccpède. Gives data on *E. lucius* (p. 212-214); and the *lake trout* (p. 194-196) as *Salvelinus namaycush* in the genus *Salvelinus* which is questionable, and states that it is common in the deep east end of Lake Erie, and rare in the shallow west end.]
- VLADYKOV, VADIM D. Conditions physico-chimiques et biologiques, et statistiques de la peche dans 48 Lacs du Parc des Laurentides. Ministère de la Chasse et des Pêcheries, Québec, 1942.
[*C. namaycush* "assez abondant" in Lac des Neiges (p. 175-176), but absent in the other lakes of this district.]

DISCREPANT CONSONANT CLUSTERS ENDING IN *-k IN PROTO-ALGONQUIAN, A PROPOSED INTERPRETATION OF SALTATORY SOUND CHANGES

BY FRANK T. SIEBERT, JR.

The fact that there were discrepant or non-matching consonant clusters ending in *-k in Proto-Algonquian[‡] was first observed by Bloomfield(1). For one of these he (p. 152) formulated PA *çk and gave the then unique example PA *meçkw- 'red.' Attention was called later to a few other examples of this problem by the writer(5), and Geary(3) gave other examples of PA *çk. Unfortunately most of Geary's examples have no cognates in the better known eastern Algonquian languages.

However, PA *çk can be shown not to be a discrepant cluster at all but a regular sound correspondence of less frequent occurrence. Since no *sk cluster is provided for in the Proto-Algonquian sound correspondences established by Bloomfield(2), and since several languages have sk as the reflex of this cluster, PA *sk is proposed for this entity to replace the typographically awkward *çk. Its reflexes in some major Algonquian languages are: F šk, M hk, C hk, MS hk, O sk, S šk, P hk, N sk, Dm hk, and D hVk. The previously determined and some further unrecognized examples of PA *sk follow that have reflexes in both central and eastern Algonquian languages:

(1) PA *meskwesiwa 'he is red.' F meškosiwa, M mehko·n (ending reshaped), C mihkosiw, MSj mohkwišiw (PA *e > MS o before *skw and *hkw), O miskosi, P mk^wiko (< pre-Abenaki *mihk^wiko; ending morphologically changed, as in PA *melwesiwa 'he is good,' C miyosiw, P wáliko), N musquesu (N msquádsu 'he is dyed red,' Exodus 25:5).

(2) PA *nemeskwi·nkwe·?le· 'I blush.' O nimiskwi·nkwe·sse·, P nāmihk^wí·k^wehla (P mk^wík^wehle 'he blushes').

(3) PA *meskwi 'blood.' F meškwi, M mehki·h, C mihko (PA *wi > C o after a nonsyllabic; nimihk 'my blood'), MSj mohk (nimohk 'my blood'), O miskwi, S mškwí (nim[?]škomi 'my blood'), N musqhe (N oosqheonk 'his blood,' Exodus 29:16), Dm mohk, D mhukw (nāmú·kum 'my blood').

(4) PA *meskwa·kamiwi 'it is a red liquid.' M mehkuakamiw, C mihkwa·kamiw, O miskwa·kamiw, S mškwaakami, P mk^wákame '(it is a) red lake.'

(5) PA *a·skikwa 'seal; harbour seal,' (PA *-ikw-a 'small gnawing animal, rodent'). Cw a·hkik (pl. a·hkikwak), MSj a·hčok (pl. a·hčokwoč; PA *k > MS

[‡] PA stands for Proto-Algonquian, F for Fox, M for Menomini, C for Plains Cree, Cw for Woodland or Swampy Cree, MS for Montagnais (MSj for Lake St. John dialect), O for Ojibwa, MI for Miami, S for Shawnee, P for Penobscot, N for Massachusetts or Natick, D for Unami dialect of Delaware, and Dm for Munsee dialect of Delaware. The asterisk (*) indicates a reconstructed form, > means becomes, < means derived from, ~ means varies within alternation.

Reference numerals refer to works as cited at the end of this article.

Abbreviations are: pl. for plural, dimin. for diminutive, V for vowel, AN for animate gender, INAN for inanimate. A raised dot following a vowel (a·) indicates a long vowel, and a cedilla beneath a vowel (i) indicates a nasalized vowel, as in the Siouan languages.

č before original *i and *e), O *a·skik* (pl. *a·skiko·k*), P *àhkik^w* (pl. *áhikik^wak*; PA *a· > P a before *xk, *sk, *θk, and *nk, rather than the usual correspondence to P α).

(6) PA *mekeskani 'fish-hook.' MSj *mičihkin* (PA *k > MS č before original *i and *e, and PA *a > MS i in certain types of closed syllables), O *mikiskan* (pl. *mikiskanan* INAN), P *mákihkan* (pl. *mákihkanal* INAN; PA *e > P i before *xk and *sk). The *me- is probably the PA indefinite possessor prefix (cf., M *kohka·n*).

(7) Early eastern Algonquian type, *alaskehikani 'hoe.' P *aláhkahikan*, N (Narragansett) *anáskhigan* (Williams(18)). Compare C *ayahike·w* 'he hoes.'

(8) PA *no·skwa·tamwa 'he licks it.' F *no·škwa·taniwa*, M *nu·hkwatam*, C *no·hkwa·tam*, O *no·skwa·tank*, N *noonosquodtam* (Psalm 72:9; reduplicated verb root to express iteration).

Except for PA *sk, forms yielding non-matching or discrepant sets of clusters ending in *-k show no orderly pattern, each example or gloss having a distribution of reflexes of its own throughout the various languages. These are grouped together for mere expediency as PA *Xk (which is not to be confused with the regular cluster or uniform sound correspondence PA *xk) where *X represents some unknown group of sounds and not a single phonological unit. Since there is no uniform pattern evident for group *Xk, one can only deduce that these discrepancies arise from a variety of origins and that no single historical sound structure constitutes a definite source. One can, therefore, conclude that we are not dealing with an unknown or undescribed Proto-Algonquian cluster.

Some of the chief examples of *Xk are the following:

(1) PA *kaya·Xkwa 'gull; herring gull.' F *akaya·škwa* (with unoriginal initial or prosthetic a-, as in F *aka·kwa* 'porcupine' < PA *ka·kwa), C and Cw *kiya·sk*, MS *čiya·škw*, M *kaya·h* (pl. *kaya·hkok*), O *kaya·šk*, P *kahk^w* (< pre-Abenaki *kàyahk^w by syllabic syncope, as in P *sàkat* 'it is difficult' < PA *salakatwi; F *sanakatwi*, N *siózkod* (II Samuel 13:2, Acts 26:14).

(2) PA *e·meXkwa·na 'spoon.' F *e·mehkwa·hi* (dimin.; pl. *e·mehkwa·hani* INAN), M *ε·meskwan*, C *e·mihkwa·n* (pl. *e·mihkwa·nak* AN), MSj *e·mkwa·n*, O *e·mikkwa·n*, S *heem[?]kwa* (pl. *heem[?]kwaanaki* AN), P *èmk^wan* (pl. *émk^wanak* AN), Dm *e·mhwá·nəs* (dimin.), D *e·mhó·nəs* (pl. *e·mhó·nsak* AN).

(3) PA *akaXkwaya 'leech.' F *akaškwa·ha* (dimin.), M *oka·ski[?]* (with quasi-diminutive -i[?], -i[?]s-; pl. *oka·ski[?]sak*), C *akahkway* (pl. *akahkwayak*), MSj *akahkwi* (pl. *akahkwi·č*), D *mahká·kw*.

(4) PA *neleXkwa 'my gland, lymph node, tonsil.' C *niiyhk*, Cw *ninihkwa* (pl. *ninihkwak* 'my glands' AN), MSj *e·lohk* 'gland, lymph node' (pl. *e·lohkwoč* AN; *nite·lohkom* 'my gland'), O *ninišk* (pl. *niniškwak* 'my glands' AN), Micmac *olohkw* 'tonsil.'

The MS term seems to have been reformed on the basis of the possessed forms of non-dependent type.

(5) PA *neXkašya 'my nail, claw, hoof' (pl. *neXkašyaki AN). F *neškaši* (pl. *neškašye·ki*), M *neska·s* (*oska·syan* 'his nail, claw'), C and Cw *niskasiy* (pl. *niskasiyak*), MSj *noškiši·m* (*woškišiy* 'nail, claw, hoof'), O *niškanš* (pl.

niškanši·k; with unoriginal cluster *nš* as shown by the M and D forms), S *hoškaša* 'claw' (pl. *hoškašeeki*), MI *kaši* 'nail' and *kaša* 'hoof, claw' (pl. *kašaki*), P *nkàsi* (< pre-Abenaki **nihkasi*; pl. *nkàsəyak*; *wkàsi* 'nail, claw, hoof,' pl. *wkàsəyak*), N *wohkas* 'his hoof,' *wuhkasoh* 'his nails, claws' obviative pl. (Daniel 4:33, 7:19), D *nhikkaš* (*hwikahša* 'his nail,' pl. *hwikahšak*).

(6) PA **weXkwani* 'his elbow' (pl. **weXkwanali* INAN). F *oto·škwani*, M *ohtu·hkwan*, C *oto·skwan*, O *oto·skwan*, MI *wihkwani*, P *wàsk^wan* (*awàsk^wanal* 'his elbow' obviative; pl. *wàsk^wanak* AN), N *weesk*, D *wi·skon* (pl. *wi·skonak* AN). The F, M, C, and O terms seem to have been reshaped from the possessed forms, since one 'central' language, Miami, and all the eastern languages are in agreement.

(7) PA **mo·Xkiwa* 'he emerges, comes forth.' F *mo·hkiwa*, O *mo·kki*, P *mòsko*, N *omohku* (Mark 10:34).

There are some other discrepancies in **-k* clusters which are quite transparent. For example, M *mēhkε·na·h* 'snapping turtle,' C *miskina·hk*, but Cw *mihkina·hk*, O *mikkina·kk*, northern O *mihkina·hk*, and P *ámihkənahk^w*. Swampy or Woodland Cree should have **miskina·hk*, like Plains Cree, but the actual form *mihkina·hk* is a patent borrowing from northern Ojibwa. The correct PA form is **mexkena·hkwa*.

The regular sound correspondences of the common PA clusters in **-k* and a schematization of the discrepant forms in pertinent languages are tabulated below for convenience:

PA	F	M	C	O	P	N	Dm	D
<i>*nk</i>	<i>k</i>	<i>hk</i>	<i>hk</i>	<i>nk</i>	<i>k</i>	<i>k</i>	<i>nk</i>	<i>nk</i>
<i>*hk</i>	<i>hk</i>	<i>hk</i>	<i>hk</i>	<i>kk</i>	<i>hk</i>	<i>hk</i>	<i>h</i>	<i>h</i>
<i>*xk</i>	<i>hk</i>	<i>hk</i>	<i>sk</i>	<i>kk</i>	<i>hk</i>	<i>hk</i>	<i>hk</i>	<i>hV^kk</i>
<i>*θk</i>	<i>hk</i>	<i>hk</i>	<i>sk</i>	<i>kk</i>	<i>sk</i>	<i>sk</i>	<i>xk</i>	<i>xk</i>
<i>*šk</i>	<i>šk</i>	<i>sk</i>	<i>sk</i>	<i>šk</i>	<i>sk</i>	<i>sk</i>	<i>sk (šk)</i>	<i>sk (šk)</i>
<i>*sk</i>	<i>šk</i>	<i>hk</i>	<i>hk</i>	<i>sk</i>	<i>hk</i>	<i>sk</i>	<i>hk</i>	<i>hV^kk</i>
Group <i>*Xk</i>								
'gull'	<i>šk</i>	<i>hk</i>	<i>sk</i>	<i>šk</i>	<i>hk</i>	—	—	—
'spoon'	<i>hk</i>	<i>sk</i>	<i>hk</i>	<i>kk</i>	<i>hk</i>	—	<i>h</i>	<i>h</i>
'leech'	<i>šk</i>	<i>sk</i>	<i>hk</i>	<i>šk</i>	—	—	—	<i>hV^kk</i>
'gland'	—	—	<i>hk</i>	<i>šk</i>	—	—	—	—
'nail'	<i>šk</i>	<i>sk</i>	<i>sk</i>	<i>šk</i>	<i>hk</i>	<i>hk</i>	—	<i>hV^kk</i>
'elbow'	<i>šk</i>	<i>hk</i>	<i>sk</i>	<i>sk</i>	<i>sk</i>	<i>sk</i>	—	<i>sk</i>
'emerge'	<i>hk</i>	—	—	<i>kk</i>	<i>sk</i>	<i>hk</i>	—	—

The historical origins of group **Xk* are conceivably attributed to one of the following situations: 1), reshaping in one or more languages due to an unknown cause; 2), borrowing from another Algonquian language, or a dialect of the same language with divergent phonological features; 3), reshaping due to lexicosemantic contamination with another form or gloss within the same language; and 4), reshaping in one or more languages due to quasi-borrowing or lexical contamination with a word of identical or similar meaning belonging to a non-Algonquian language.

Wanton acceptance of the first proposition is otiose and promotes of failure of effort to discover the circumstances producing the phonological reshaping. It disregards the mechanistic basis of all scientific procedure and surrenders to a concept of sporadic or uncontrolled saltatory sound change that eventually

can result only in a bizarre maze of incongruities. It can become chimerical and produce fictitious phonological trajectories. However, in the absence of historical or written records it is impossible to ascertain in detail the facts involved in many irregular sound changes. On the other hand, one can often perceive or infer the nature of the circumstances; reshaping due to unknown cause is acceptable only when controlled by a reasonable inspectional approach and when exhaustive efforts towards other explanation have failed. Thus, there could be no reasonable doubt that Menomini *ε·meskwan*, 'spoon,' is historically related to Cree *e·mihkwa·n* and to the terms in the other languages with cluster *hk*. Although explanation of the discrepancy presented by Menomini *sk* is obscure, an inspectional approach would be safe in assuming that the forms are somehow cognate on a premise of controlled saltatory sound change. Yet the obligation to explain the mechanism of the change remains, and the situation should not be relegated permanently to the class of reshapings ascribable to an unknown cause.

The second situation includes all types of dialect mixture and borrowing from related languages. It has been already illustrated by Swampy Cree *mihkina·hk* 'turtle,' which is evidently a loan from Ojibwa and requires no further comment.

The third condition may obtain within a language when two separate glosses have both similar phonemic form and some degree of semantic relationship. Lexical contamination may follow and sometimes result in the elimination of one of them from the language. Two apparent examples of this will be given later.

The fourth proposition requires the presence of at least some bilingual or partly bilingual speakers in a speech community. Such situations frequently arise from intimate contact, from intermarriage, and from the presence of captives or prisoners of war. In small communities, such as those usually found in aboriginal America, the more or less permanent presence of only a few foreign speakers would suffice to encourage full borrowing or quasi-borrowing. Terms of similar or identical meaning which had a similar phonetic structure in both otherwise unrelated languages would be especially susceptible to lexical contamination or quasi-borrowing. Any demographic displacement would interfere with the regular phonological change that would otherwise take place in a homogeneous society, and an unstable population of speakers could readily disturb the expected sound developments.

As some of the early Algonquian speakers migrated westward from the original Algonquian homeland(6) in southern Ontario, between Georgian Bay and the northern shore of Lake Ontario, into the area of present Michigan, Wisconsin, and perhaps some adjoining regions, some contact with and demographic displacement by Siouan speakers took place. Linguistic evidence for this is found in numbers of loan-words from Algonquian in some Siouan languages and what appear to be points of phonological contact modification in Algonquian. At this ancient time only small numbers of people were involved. For example, Menomini probably never had more than 2,500 speakers in recent times, and when in distant prehistory their ancestors moved into the northern peninsula of Michigan, the total speakers of the ancestral language might well have numbered no more than 100 to 200 persons. A few intermarriages or adoptions of foreign-speaking captives might readily account for

disturbed sound changes, lexical contamination, and full borrowing. This subject calls for further investigation, but preliminary data are here presented to establish that there was at least some early Algonquian-Siouan linguistic interchange in the western Great Lakes region. Unfortunately, comparisons cannot be made on a completely diachronic level as they should be, for the Siouan materials available are not of sufficient quality and quantity. This approach is admittedly partly heuristic, and some of the following examples may later prove incorrect, but some of them are of sufficient credibility that the fact of Algonquian-Siouan interchange can be established. Therefore, before pursuing the discussion of PA group *Xk further, a brief digression is in order to demonstrate Algonquian-Siouan borrowing in the following examples:

(1) PA *šenta 'conifer, evergreen tree; evergreen bough,' based on C *sihta*, P *sèti* (ending reshaped by analogy to *ánipi* 'elm,' and so on; pl. *sètəyak*), M *səhta·k* 'bough of needle tree' (for expected **səhta·h*), Dm *šənt* 'hemlock' (pl. *šəntak*).

Dakota *šítá* 'tamarack' (Riggs (27), p. 445). This appears to be an ancient loan in which early Algonquian was the donor language and Santee Sioux the recipient. The Santee word almost exactly matches the Proto-Algonquian term and is in a form no longer used in any living Algonquian language.

(2) PA *ketema·ki 'poor, wretched, destitute' (prenoun); PA *ketema·kesiwa 'he is poor,' F *ketema·kesiwa*, C *kitima·kisiw*, O *kitima·kisi*, P *kətamákeyo* (with reshaped ending).

Dakota *támaka* 'poor, lean' (Riggs, p. 456). Algonquian would appear to be the donor language.

(3) Menomini *məhka·k* 'goose' (<PA *nexka 'goose,' F *anehka*, C *niska*, MSj *nišk* 'Canada Goose,' O *nikka*, Arapaho *né?*).

Dakota *maǵá* 'goose' (Riggs, p. 303) Quapaw (29) *mí·hka* 'duck, goose.' The Menomini term may have been initially reshaped on the model of M *meke·k* 'otter' (<PA *nekikwa, C *nikik*, O *nikik*, pl. *nikikok*, PA *-ikw-a 'rodent'), but if so, then both reshapings are without full explanation and this argument is circular. An equally or perhaps more cogent interpretation is that PA *n- was reshaped to m- in Menomini *məhka·k* by lexical contamination with phonetically similar and semantically identical Santee Sioux *maǵá* 'goose,' or some other Siouan language form, in a partly bilingual community.

(4) PA *wa·ši 'hole of animal, den,' pl. *wa·θali INAN (PA *θ ~ *š before *i and *i·). C *wa·ti* 'hole of animal, den, cave' (pl. *wa·tah*), O *wa·š* 'den, hole (of wild animal)' (pl. *wa·šan*).

The Cree form has been reshaped from the plural *wa·θali or C *wa·tah* and by analogy to PA *wa·θehka·ni 'pit, hole, trench (man-made),' posited by C *wa·tihka·n* and O *wa·nikka·n*. Compare also, PA *wa·θehke·wa, 'he digs a pit, makes a hole in the ground,' based on F *wa·nehke·wa*, M *wa·nehkew*, C *wa·tihke·w*, O *wa·nikke·*, S *waalʔke*, P *wəlke* (<pre-Abenaki *wəlihke).

Dakota *wašú*, *wašó* 'den or hole of animal' (Riggs, p. 537-538), Hidatsa (26) *awaši* 'pit.' The Siouan forms would appear to be an ancient borrowing from Algonquian, and probably some early form of Algonquian once spoken in the region of northern Michigan or Wisconsin, for there is also PA *wa·θakwi

'hole, pit, burrow,' posited by F *wa·nakwi*, P *wàlak^w* (pl. *wálakol* INAN), and N *wonogq* (Exodus 28:32).

(5) PA **wečye·kwa* 'fisher' (*Martes pennanti*). M *oči·k*, C and Cw *oče·k*, MSj *oče·k*.

Dakota *škečá* 'fisher.' This possibly could be a loan from Algonquian which has been reshaped to conform to Siouan phonemics.

(6) PA **wi·si* 'belly fat.' C and Cw *wi·si* 'belly fat' (pl. *wi·sah* INAN), MSj *wi·š*, N *wees* 'fat' (Exodus 29:13, 22; Leviticus 3:14). Compare D *nəwí·si* 'I am fat.'

Dakota (Santee) *šĭ*, (Teton) *wašĭ* 'fat, fat part of animal,' Mandan *sih* 'fat,' Ofo *ičhí*, Osage *wašĭ*.

If these resemblances are more than fortuitous, the interchange must have been a very ancient one. Assuming that the relationship is genuine, since the etymon is widespread throughout both linguistic families, it may be impossible to tell which was the donor and which the recipient.

(7) PA **ti·nti·wa* 'Blue Jay.' F *ti·ti·wa*, Cw *te·hti·siw* (dimin.; with dissimilative (?) change of first vowel), O *či·nti·ss* (dimin.; original PA **t~*č* before **i* or **i·*), S *tiiti*, P *titəyαs* (reshaping with noun final *-αs*, as in *k^wánawαs* 'Long Hair').

Dakota *teténíča* 'Blue Jay' (Riggs, p. 467), Catawba *tінде*. This appears to be an early borrowing from Algonquian into Siouan, but it calls for more investigation on a diachronic level within Siouan. Both the Santee Sioux and Catawba had long contact with Algonquian peoples east of the Mississippi River.

(8) PA **o·te·weni* 'town, village,' pl. **o·te·wenali* INAN, posited by F *o·te·weni* (pl. *o·te·wenani*), S *hoteewe* (pl. *hoteewena*). Reshaped forms made from the plural by metathesis of **-we-* and **-na-* are found in C, Cw and MS *o·te·naw* (C and Cw pl. *o·te·nawah*), O *o·te·naw* (pl. *o·te·nawan*), P *ótene* (pl. *ótenal*), N *otan* (Ecclesiastes 9:14).

Dakota *otqwe* 'town, village,' Catawba *we·*. This is a formative of Dakota *otí* 'house, lodge,' Mandan *óti*, Hidatsa *atí*, Tutelo *atí*, Ofo *athí*, Crow *ašé*.

If the correspondence is more than fortuitous, the borrowing must have occurred in the earliest Proto-Algonquian times. It would appear that Siouan was probably the donor language.

(9) PA dependent noun stem **-mo·te·-* (properly **-mo·tye·-* if M *i·* is original, although sequence **ty* is rare in PA) 'bag, sack,' M *-mu·ti·-*, O *-mo·te·-*, as in M *nemu·ti·h* 'my bag' (pl. *nemu·ti·hsan*; with dependent noun diminutive *-h*, *-hs-* and perhaps foreign *i·* for *e·* (?), or more probably medial *-i·-* and dimin. *-h*, as in dependent noun *neti·h* 'my legging, stocking'), O *nimo·te·ns* 'my pocket' (with dimin. *-ns*).

The word is irregular in Menomini, which preserves an archaism. The independent noun is formed from the dependent stem *-mu·ti·-* with dependent diminutive *-h*, *-hs-* and the impersonal noun prefix for indefinite possessor *mε-*, *me-* (PA **me-*), with dissimilation of *m* to *n*, since Menomini has *menu·ti·h* 'bag' (dimin.; pl. *menu·ti·hsan* INAN). That this dissimilation is ancient is shown by P *mánote* 'bag, sack' (pl. *mánotal* INAN) and secondary

formatives with a dissimilated medial like P *apásənote* 'basket,' Dm *mənó·te·s* 'pouch' (dimin.; pl. *mənó·te·sak* AN). The eastern Algonquian languages have extended the independent noun with the old dissimilation of **m* to **n* and the impersonal prefix PA **me-* to the possessed forms and obliterated the dependent classification in this word, as in P *nəmónote* 'my bag.'

There is also the M medial *-askemot* 'bag,' pl. *-askemotyan*, as in *we·kopa·skemot* 'bag of basswood bark,' found also in Fox, Cree, and Ojibwa, with Ojibwa like Menomini having both a dependent stem and a medial, but, unlike Menomini, having no dissimilated independent form. These languages, on the other hand, pattern the independent noun secondarily from forms made from the impersonal or indefinite prefix PA **me-* and the medial PA **-aškimotye-* (with vocalic shortening of **o·* to **o*, a feature characterizing many deverbal medials, as in PA stem **mi·n-a* 'berry' ~ **-min-a*, the deverbal medial), as shown in F *maškimote·hi* 'bag' (dimin. *-eh-*, INAN noun final *-i*), C *maskimot*, O *maškimot*. In these languages the prefix has become fossilized or non-functional, since the possessed forms are from this independent type made with the medial, giving F *nemaškimote·hi* 'my bag,' and O *nimaškimot*.

Catawba *íti·* 'bag, sack,' Dakota *ozuha* (*ozu-*, and *ha* 'hide, skin'). It appears possible that Catawba *íti·* and perhaps earlier Siouan forms are a loan from PA dependent noun stem **-mo·tye-*, M *-mu·ti-*, and dissimilative *-nu·ti-*.

This terminates the present discussion of Algonquian-Siouan relationships which is a necessary preliminary for some of the following projections. It would appear that more satisfying evidence of such an interchange might be established if all the Siouan languages would receive phonemic treatment and fuller documentation.

Among the discrepant sets in PA **Xk*, there are for the present no solutions readily apparent for **kaya·Xkwa* 'gull' and **neleXkwa* 'my gland,' and they remain in the group of reshapings due to unknown cause. However, the belief exists that both examples represent PA **sk* (old **čk*) and that Ojibwa reshaped original and expected *sk* to *šk*, perhaps by borrowing from Fox, Kickapoo, or some other language with *šk*. Then the Cree-Montagnais term for 'gull' was perhaps an early loan from Ojibwa which would account for the cluster in either case whether Ojibwa at the time had *sk* or *šk*; the ancient variation of PA **a* ~ **e* accounts for the alteration of the first vowel from *a* to *i*. At any rate the initial vowel change, and therefore the assumed borrowing, occurred before Montagnais shifted **k* to *č* preceding *i* and before the time of the loss of word final vowels (AN pl. final **-aki* > MS *-ač*).

PA **e·meXkwa·na* 'spoon' seems almost certainly to represent PA **e·mehkwa·na*, with only Menomini in disagreement. M *ε·meskwan* is evidently the result of reshaping due to lexical contamination with Siouan in a bilingual community. Dakota *čjšká* 'spoon' (Riggs, p. 101) shows the contaminating cluster, and Cheyenne *hamišku* 'spoon' (Michelson (4)) supports this argument, Cheyenne also having been in close contact with Siouan for a long period.

PA **weXkwani* 'his elbow' shows that all the eastern languages (P, N, D) have *sk* and that C and O agree with this, whereas MI and M have *hk*, and F *šk*. For the sake of discussion, if one assumes that PA **sk* is correct then Cree and Penobscot are deviant, but if PA **šk* is correct then Menomini, Ojibwa, and Miami are deviant. On distributional grounds the latter alternative

appears far more likely, with borrowing between these languages as a possibility. Contamination from Siouan does not seem to be the disturbing factor, for Dakota has *istó* 'arm, forearm' and *išpá* 'elbow.' This example then remains in the group of reshapings due to unknown cause, with PA **šk* suggested as the more likely solution.

PA **neXkašya* 'my nail, claw' has *hk* in all the eastern languages and Miami, but *šk* in all the other central languages that permit this cluster, and *sk* in all the ones where *šk* and *sk* have fallen together. Thus, except for Miami, there is a sharp division of distribution into two homogeneous groups, in the east one with *hk*, and in the central language group one with **šk* or the equivalent. Now this dependent noun stem PA **-Xkašy-* has in all languages a deverbal medial counterpart. In the central languages the deverbal medials often differ from their corresponding noun stems by some minor variation of phonemic structure, such as vocalic length changes or loss of an initial consonant. This contrast is largely lacking in the eastern languages, partly due to lexical replacement and partly through phonological levelling and loss of phonemic vowel length differences.

Forms exhibiting the deverbal medials are F *kaka·mwihkaše·wa* 'he has long nails, claws,' M *kaka·nekasi·w*, C *kinokaskwe·w* (reshaped for **kinoskase·w*; PA **wi* > C *o* after all nonsyllabics), O *kaka·nokanši·*, P *k^wənihkášəye* (used for humans only; with metathesis of *w*, since clusters ending in *w* other than unit phoneme *k^w* and *hw* do not occur in P). Now, F, M, and O have a special type of reduplication to indicate plurality of objects, hence the *kaka·nw-* reduplication for PA **kenw-* 'long,' which is absent in C and P; PA **-e·-(wa)* is the animate intransitive final. The F, C, and P forms show that the medial is PA **-xkašy-*, and the correct reconstruction is PA **kenwixkasye·wa* 'he has long nails.' The loss in the medial of the initial cluster **-xk* to *-k* in M and O is certainly secondary.

Returning to the dependent noun stem, one eastern language, Delaware, has an interrupted cluster *hV₁khV₂* showing that the cluster would have to be either **xk* or **sk*, and this is in agreement with Penobscot. But Natick excludes **sk*, indicating that so far as all eastern languages are concerned only **xk* is correct. Therefore, in the eastern languages the dependent noun stem and deverbal medial are uniform in having **xk* in **-xkašy-*, and there is no contrast between noun stem and medial. PA had **-xkašy-* only for the medial.

Thus the problem resolves itself into the question whether the eastern languages lost the contrast between the dependent stem and medial or whether the central languages developed a new dependent stem and therefore also the contrast. The latter seems unlikely, but if for the sake of argument one assumes that such was the case, then the cluster could only be **šk* in the stem **-škasy-*. But Miami, also a central language, is in disagreement with this, and since **xk* and **šk* have fallen together in Cree, **xk* also fulfils the requirements of Cree. This leaves Fox, Shawnee, Menomini, and Ojibwa in a position of isolation regarding the dependent stem.

The other alternative, and the more likely one, is to assume that all the eastern languages lost the contrast between stem and medial and extended the **xk* of the medial to the dependent noun stem. If one examines some of the common PA noun stems that have deverbals and their medial counterparts (many of which also function as finals) most of them are found to show a structural

contrast. They occur in four groups: (1) those that show no contrast (PA **eθkwe·w-* 'female, woman' ~ **-eθkwe·w-*; PA **-axkesin-* 'shoe, moccasin' ~ **-axkesin-*; PA **-a·pe·w-* 'male, man' ~ **-a·pe·w-*), (2) those that have contrast by change of vowel length (PA **mi·n-* 'berry, fruit, nut' ~ **-min-*; PA **ši·ʔši·p-* 'duck' ~ **-eʔšip-*; PA **-mo·tye·-* (and assimilated **-no·tye·-*) 'bag' ~ **-motye·-*), (3) those that show contrast by change of a nonsyllabic (PA **aθemw-* 'dog' ~ **-aʔθemw-*; PA **-ame·w-* 'fish' ~ **-ame·kw-*, and verbal **a·me·-* 'to fish'), and (4) those that exhibit both vowel and consonant change (PA **-eʔtekw-* AN 'tree, green wood,' INAN 'stick, stem, dry wood' ~ **-a·htekw-*; PA **-epy-* 'water, liquid, fluid' ~ **-a·pw-* or **-a·po·w-*).

It will be noted that many noun stems having deverbals are either of the dependent type and have an ancient prefixation of the indefinite impersonal possessor prefix PA **me-* 'someone's,' or are of the non-dependent type and have the fossilized prefix of common or universal existence, PA **ne-*. The former is illustrated by PA **maxkesini* 'shoe, moccasin,' PA **meno·tye·wi* (with dissimilative **n* for **m*) 'bag, sack' (M *menu·ti·h* with dimin. *-h*, P *mānote*, Dm *māno·te·s* dimin. 'pouch,' D *māmú·tte·s* dimin. 'pouch'), but PA **nemo·tye·wi* 'my bag' (M *nemu·ti·h* with dimin. *-h*, O *nimo·te·ns* 'my pocket' with dimin. *-ns*; but M *nemo·t* 'my belly,' D *nāmú·ttay*) and PA **meʔtekwa* 'tree,' **meʔtekwi* 'stick, stem.' The latter is represented by PA **na·pe·wa* 'man, male,' PA **na·pe·θkwa* 'male bear'; PA **name·wa* 'lake sturgeon,' PA **name·ʔsa* 'fish' dimin. **-ʔs-* (M *namε·ʔs*, P *nāmehs*, Dm and D *namé·s*), but PA **name·kwa* 'lake trout' (P *nāmekʷ*, M *namε·koh* dimin.), with universal prefix **ne-* and the deverbal medial and final **-ame·kw-* 'a particular species of fish'; and PA **nepyi* 'water.'

Only a few of the contrasting and structurally different paired stems and medials are preserved in the eastern languages, and while the elements persist in one or the other categories, the contrasts in most cases have been levelled out by phonological change (loss of phonemic vowel length) or by lexical replacement. Those persisting are chiefly the ones without contrast (**eθkwe·w-* ~ **-eθkwe·w-*, **-axkesin-* ~ **-axkesin-*) or ones that are not dependent stems (**aθemw-* ~ **-aʔθemw-*, P *aləmW-* ~ *-ahsəmW-* 'dog'; **-ame·w-* ~ **-ame·kw-*, P *-ame-* ~ *-amekʷ* 'fish'; **-epy-* ~ **-a·pw-*, **-a·po·w-*, P *-api-* ~ *-apo*). Rarely do the eastern languages retain a dependent noun stem which has a deverbal medial showing structural contrast.

The onus of the typological evidence is, therefore, that the original dependent noun stem is PA **-škašy-* (**meškašya* 'someone's nail, claw, hoof') and its corresponding deverbal medial is PA **-xkašy-*. All the eastern languages have uniformly extended the deverbal form to the primary dependent noun stem, and some of the central languages (M, O) have reduced the cluster of the medial from **-xk* to *-k*.

The remotely related Algonquian languages of northern California, Wiyok and Yurok (Ritwan group), which may have separated from Algonquian in the pre-Proto-Algonquian period about five or more millennia ago and perhaps even before the Algonquian peoples were established in their original home, offer some confirmation. Now as Haas (30) has shown, PA **θk* > Wiyot *tk* and Yurok *lk*, and PA **xk* > Wiyot *čk* and Yurok *ck*. Wiyot *watkan-* 'nail' (Teeter (32), p. 67, 82) shows that the cluster could not be **xk* and that it is either **θk* or, as Sapir (31, p. 624) evidently thought, **šk*. Also, there is an ancient PA

alternation of $*\theta \sim *š$ before $*i$, $*i\cdot$, and $*y$, and in many languages (C, P, N) $*\theta k$ and $*š k$ fell together. Now, most of the eastern languages except Natick have immutable l as a reflex of PA $*\theta$ and do not ordinarily have mutant $*š$. That immutable l from PA $*\theta$ is a secondary reconstitution and not an original Algonquian feature is shown by some survivals of mutant $*š$ in Penobscot, which otherwise has immutable l . P has *àso* 'he fares so, he does thus' < earlier $*ešiwa$ (root $*e\theta$ -; word initial PA $*e$ - > P a -, as in PA $*elen$ - > P $alən$ - 'ordinary, common'; and final $*-iwa$ > P $-o$), but P *àle* 'it happens so, it fares thus.' From the evidence (30) that PA $*\theta$ > Wiyot $t \sim š$, and PA $*š$ > Wiyot $t \sim l$, it appears that PA $*\theta k$ and $*š k$ fell together in Wiyot to tk , and therefore Wiyot confirms PA $*weškašya$ 'nail.'

Two examples of group $*Xk$ are due to lexical contamination of phonetically and semantically similar terms within Algonquian, resulting in a criss-cross of semantic changes and the elimination of one of the conflicting forms in some languages. Example $*akaXkwaya$ should evidently be PA $*akaskwaya$ 'leech,' based on F *akaš kwa·ha* (dimin.), C *akahkway*, MS *akahkwi*, and D *mahká·kw* (with vowel lengthening and interrupted cluster for $*makahkw$, and either prosthetic m - or indefinite prefix $*me$ -). This has been contaminated with PA $*šakaš kwa$ 'tick,' posited by F *šakaš kwa·ha* 'tick, bloodsucker' (dimin.), P *sákaskəss* 'animal tick, plant or beggar tick, pubic louse' (dimin., reshaped with loss of w ; pl. *sakáskəssak*). O *šakaš kwa·čime* ~ 'leech' and M *oka·ski*? 'leech' are both diminutive contaminated forms which do not match other languages in meaning.

The same type of overlapping seems to have taken place in spurious $*mo·Xkiwa$ 'he emerges, comes forth.' Ojibwa seems to preserve the original contrasting roots, for there is O *mo·š kamo* 'he emerges,' M *mo·skamow*, both from PA $*mo·š kamowa$. On the other hand, there are also O *mo·kki* 'he comes forth,' *mo·kkisse* 'he moves into view,' *mo·kkipi* 'he comes forth out of the water,' F *mo·hkiwa* 'he emerges, comes out,' C *mo·skiw*, N *omohku* 'he rises, comes forth, emerges,' which posit PA $*mo·xkiwa$ 'he comes forth, moves into view.' Penobscot *mòsko* 'he emerges, he comes to the surface of the water, he comes forth from the ground or place of concealment' (*námoski* 'I emerge') appears to be a contaminated form with much of the meaning of both original roots.

In summary, a tabulation of the suggested solutions is appended. A query (?) indicates that the proposal is extremely doubtful, and probably the gloss should remain classified for the present in group $*Xk$ as a reshaping due to unknown cause. Further investigation with other Algonquian languages, especially the Plains languages (Arapaho, Cheyenne, Blackfoot), may solve some if not all the discrepancies.

Gloss	Suggested Solution for PA $*Xk$	PA form
'gull'	$*sk$ (?)	$*kaya·Xkwa$ ($*kaya·skwa$?)
'spoon'	$*hk$	$*e·mehkwa·na$
'leech'	$*sk$	$*akaskwaya$
'gland,' 'tonsil'	$*sk$	$*weleskwa$
'nail,' 'claw'	$*š k$	$*weškaš ya$
'his elbow'	$*š k$ (?)	$*weXkwani$ ($*weš kwani$?)
'he emerges,' 'comes into view'	$*xk$	$*mo·xkiwa$

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THE PROTO-ALGONKIAN WORD FOR 'SUN'

BY MARY R. HAAS*

1. In a posthumous article published in 1939, Michelson sets up **ki·šehswa* as the PA word for 'sun.'¹ He bases his reconstruction on M *ki·seh*,² F *ki·šeswa*,³ and an otherwise unattested C *ki·sis*. In all the Cree sources known to me, 'sun' is given as the unrelated word *pi·sim(w)*.⁴ On the other hand, Michelson fails to quote the obvious Ojibwa cognate *ki·siss*,⁵ and it therefore seems likely that he had inadvertently mislabelled the term *ki·sis* as Cree when it should have been Ojibwa. As a consequence of the mislabelling, however, he has no reason to notice the anomaly of the first *s* in the word. If it is Ojibwa (as it must be), this *s* cannot be the reflex of PA **š*, though, if the word had been Cree (as he mistakenly supposed), it could be. Michelson does not discuss any other cognates or possible cognates except for the following interesting remark:

"I do not know how to interpret Miami-Peoria *kīl'swa*" (Gatschet *kilswa*) 'sun,' but it may be noted an equivalent occurs on some documents."
(p. 76)

2. Nearly two decades later Hockett (1957) reconstructs the word for 'sun, moon, month' as **ki·sehswa* because O *ki·siss* and Pt *kisəs* point to **s* rather than **š* as the initial consonant of the second syllable. M *ke·seh*,⁶ also considered in making the reconstruction, can be from either. Hockett further observes that F *ki·šeswa* and Sh *ki·šθwa*, on the other hand, point to **š* rather than **s*, and he offers two alternative solutions to the anomaly. If the prototype form was **ki·sehswa*, then the Fox and Shawnee words may have *š* because of "contamination from" (his terminology) **ki·šek*- 'day' (p. 262). On the other hand, the prototype form may have been **ki·šehswa* (as indeed was suggested by Michelson), and in that case Ojibwa and Potawatomi have *s* instead of *š* by assimilation to the following *s*.

Since Hockett makes his reconstructions on the basis of the so-called Central languages, particularly F, C, M, and O (with Pt and very occasionally Sh), he does not discuss the word for 'sun' in other cognate languages. Moreover, he does not mention the provocative Miami word, even though Miami is one of the Central languages.

3. As luck would have it, Bloomfield's long-awaited grammar of Menomini, published posthumously in 1962, gives frequent citations of the word for 'sun, moon, month.' The proper cognate is not *ki·seh* or *ke·seh*, as cited by Michelson and Hockett, but *ke·so^onw-* in nonfinal position, *ke·so^o* (by regular rule) when final (p. 114).

This discovery of the proper Menomini word for 'sun' makes it necessary to present a new reconstruction at the PA level. M *ke·so^onw-* is a good cognate of the already cited Fox and Ojibwa terms, provided a change is made in the reconstruction, as shown in Table 1.⁷ Since recordings of the word are now available in numerous additional languages, information from all branches of

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the family has been taken into consideration in making the new reconstruction. A cognate has been found in all the languages searched except Cree, Micmac, Natick, and Blackfoot. The usual Cree word, *pi·sim(w)-*, has already been mentioned. The Micmac *nagōsit* (Rand) is likewise unrelated. In Natick we find the word *kisək* (*kēsuk*) (Trumbull), from PA **ki·šek-* 'sky, day,' is used not only for 'sky, day, daylight' but for 'sun' as well. Finally, the Blackfoot word *kiʔsómma*⁸ is also aberrant and has no ready explanation at present.

TABLE 1. *The PA word for 'sun'*

PA	*ki·seʔθwa	*ki·šeʔθwa	^s *ki·šoʔθwa	*ki·šoʔθwa
F		ki·še swa		
M			ke·soʔn w-	
O	ki·siss			
Pt	ki səss			
Sh		ki·š(aʔ)θwa		
Mi	ki l ʔswa			
D				ki·šu· x
Ab			gi zó s	
Pn			ki sohs	
Ps			ki·sohs	
Ml			kí sohs	
Pw				ki šo s
Ar				hii sii s
At				ʔii sii s
Ch				ʔi ši ʔi

4. The normal correspondences for the vowels and consonants or consonant combinations that are used in making the new reconstruction (or that need to be considered as alternate possibilities before they can be rejected) are shown in Table 2.⁹ The most critical point is the reconstruction of the consonant cluster following the second vowel. The Menomini cluster ʔn has two possible sources, *ʔθ and *ʔl. Bloomfield based his own reconstructions on Fox, Cree, Menomini,

TABLE 2. *Sound correspondences*

PA	F	C	M	O	Sh	Mi	D	Pn	Ar	Ch	B
*i·	i·	i·	e·	i·	i·	i	i·	i	ii	i	ii
*e	e	i	e, ε	i	e, i	i	ə	ə	e, i	a	a, i
*o	o	o	u, o	o	o	o	u, o	o	i	i	o
*k	k	k	k	k	k	k	k	k	h, ʔ	ʔ	k, ks
*s	s	s	s	s	θ	s	s	s	n-, -h-	o, h	s
*š	š	s	s	š	š	š	š	s	s, x	š, x	t, ts, st, sts
*θ	n	t	n	n	l	n-, -l-	l	n-, -l-	θ	t	t, ts, st, sts
*l	n	y	n	n	l	n-, -l-	l	n-, -l-	n	t	t, ts, st, sts
*hs	s	s	hs	ss	ʔθ	s	s	hs, ss	h	h	ss, xs
*ʔs	s	s	ʔs	ss	ʔθ	(ʔ)s	s, hs	hs	hʔ	ʔ	ʔs
*ʔš	š	s	ʔš	šš	ʔš	(ʔ)š	x	hs	s, x	ʔš, ʔx	st, xt
*ʔθ	s	st	ʔn	ss	ʔθ	(ʔ)s	x	hs, ss	s, x	ʔ	ʔs
*ʔl	s	hy	ʔn	ss	ʔθ	(ʔ)s	hVl	hl	hʔ	ʔ	st, xt

*Pn shows initial s- before e·.

and Ojibwa whereas Hockett added Potawatomi and, rarely, Shawnee. Of these six languages the only one in which prototypical $*\theta$ and $*\eta$ have not merged is Cree. But in this instance the Cree word is noncognate, and one cannot solve the problem without going beyond these six languages. Fortunately both Delaware *x* and Penobscot *hs* point to $*\theta$, and this is accordingly shown in the reconstruction; *see also* the reflexes of PA $*ne\theta wi$ 'three' in Table 3.¹⁰

There remain, however, two other phonological problems in the PA word for 'sun' that have not yet been completely solved: (1) the vowel of the second syllable is either $*e$ or $*o$, and (2) the first consonant of the second syllable is either $*s$ or $*š$.

Frank Siebert (pers. comm.) points out that in the Eastern languages $*e$ before hCw is replaced by *o*; *see* the Abenaki (with loss of *h*), Penobscot, Passamaquoddy, and Malecite forms in Table 1. However, reflexes of $*o$ appear also in Menomini, Cheyenne, and possibly Arapaho-Atsina. Furthermore, the rule would need some modification to account for the vocalism *a* seen in the Eastern languages in the word for 'three,' Table 3.

No new suggestions can be made about the problem of $*s$ versus $*š$. All the languages except Ojibwa, Potawatomi, and Miami show what could be the reflex of $*š$, but it must also be remembered that in Menomini and the Eastern languages $*s$ and $*š$ have merged. Moreover, the *s* in Ojibwa and Potawatomi could be explained away as the result of assimilation to the following sibilant. The Miami form, however, cannot be so easily explained away, and it is therefore worth while to take a closer look at the problem posed by this language.

TABLE 3. *The PA word for 'three'*

PA	*n	e	?	θ	w	i
F	n	e	s		w	i
C	n	i	s	t	o	
M	n	ε	?	n	i	w
O	n	i	s	s	w	i
Pt	n		s		w	u
Sh	n		θ		w	i
Mi	n	i	(?)	s	w	i
D	n	a		x	a	
Ab	n	á		s		
Pn	n	a	h	s		
Ar	n	e	e	s	o	
At	n	ε	ε	θ		
Ch	n	a	?		a	

5. If we assume that Mi *kil[?]swa*¹¹ is somehow cognate with the other forms shown in Table 1, then we need one more PA variant, namely $*ki\cdot\theta e\theta swa$, showing metathesis of the θ and *s* of $*ki\cdot se\theta wa$. The metathesis did not take place in Miami since $*\theta$ would yield *l* only if *not* preceded by η ; *see* Table 2. In other words, PA $*ki\cdot še\theta wa$ would yield Mi $*kiš(\eta)swa$ whereas $*ki\cdot se\theta wa$ would yield Mi $*kis(\eta)swa$.

If a metathesized variant $*ki\cdot\theta e\theta swa$ is accepted, then the Miami word is cognate; if it is not accepted, then the Miami word is noncognate and unexplained.

Miami is the only language which points unequivocally to **s* rather than **š*, since *s* in this instance cannot be attributed to assimilation. Then what of the *š* in Fox and Shawnee? At present I can only suggest that we fall back on Hockett's earlier explanation and suppose that the word for 'sun' in these two languages was influenced by the word for 'day' which is derived from PA **ki·šekwi*; see Table 4.¹²

TABLE 4. *The PA word for 'day,' 'sky'*

PA	<i>*ki·šekwi</i>	<i>*ki·šokwi</i>
F	<i>ki·šekwi</i>	
C	<i>ki·sik</i>	
M	<i>ke·sek</i>	
O	<i>ki·šik</i>	
Pt	<i>ki·šək w-</i>	
Sh	<i>ki·š kw-</i>	
D	<i>ki·š ku</i>	
Ab		<i>gi zók w</i>
Pn	<i>-ki sək-</i>	
Nt	<i>ki sək</i>	
Ar		<i>hiisi?</i>
At		<i>?iis</i>
Ch		<i>?iš</i>
B	<i>ksii stsi kò-</i>	

6. If in the future further light can be thrown on the problems brought up in this paper, it will probably come about through a more detailed study of PA roots and affixes. All the reconstructions given in this paper are of complex forms which, according to Bloomfield's analysis, consist of a root plus one or more suffixes. For example, in his recently published grammar of Menomini, Bloomfield lists *-oʔmw-* as an abstract noun final (p. 250) which he has found only in *ke·soʔmw-* 'sun.' In another place he states that abstract finals "have little or no meaning beyond marking the part of speech of verb class" (p. 66).

Using the same type of analysis PA **ki·seʔθwa* ~ **ki·šeʔθwa* consists of a root **ki·s-* or **ki·š-* plus an abstract noun final **-eʔθw-* followed by the animate singular suffix **-a*. In the same way PA **ki·šekwi* 'day, sky' consists of a root **ki·š-* plus an abstract noun final **-ekw-* followed by the inanimate singular suffix **-i*. It is then possible to raise questions about other connections in the proto language itself. Is **-ekw-*, noun final in **ki·šekw-* 'day, sky,' related to the medial **-ekon-* 'day'?¹³ If the root of 'sun' is properly **ki·š-* (rather than **ki·s-*), then this may very well be the same root as that found in 'day, sky.'¹⁴ On the other hand, if the root of 'sun' is **ki·s-*, then it is possible that the confusion between this and **ki·š-*, the root of 'day, sky,' is not recent (i.e., developed, say, in Fox and Shawnee) but a feature that goes back to the proto language itself.

NOTES

¹ Michelson's linguistic forms have been rewritten in the orthography in general use today (except in actual quotations). Hence vowel length is written as a raised dot (·) instead of a macron; *e* is replaced by *š*, *ə* is replaced by short *a*; and so on.

The following abbreviations for language names are used in this article: PA, Proto-Algonkian; Ab, Abenaki; Ar, Arapaho; At, Atsina; B, Blackfoot; C, Cree; Ch, Cheyenne; D, Delaware; F, Fox; K, Kickapoo; M, Menomini; Mc, Micmac; Mi, Miami; Ml, Malecite; Nt, Natick; O, Ojibwa; Pe, Peoria; Pn, Penobscot; Pq, Pequot; Ps, Passamaquoddy; Pt, Potawatomi; Pw, Powhatan; Sh, Shawnee.

- ² Michelson takes this form from Bloomfield's *Menomini Texts*, p. 366, l. 33 (1928).
- ³ Michelson regularly overwrites medial sibilants in Fox with a preceding aspiration mark. This is omitted here to agree with Bloomfield's method of writing Fox in his 'Algonquian' (1946) and other studies.
- ⁴ Lacombe (1874), Watkins-Faries (1938), Ellis (1962). Cree dialects in *Hale's Vocabularies* (Gallatin, 1848) have words very similar to this, e.g., Scoffies (= Naskapi) *beeshoon* and Sheshapootash (= Montagnais) *beshung*.
- ⁵ In many sources *ki·siss* is written with only one final *s*. The rendition *ki·siss* is taken from Bloomfield (1957).
- ⁶ Notwithstanding the different spelling *ke·seh* used by Hockett (which may indeed have been introduced by Bloomfield in his card file), the Menomini word he quotes occurs in the same context as the word quoted by Michelson. Hockett states that the M word is taken from "the expression *ke·seh e·hkwah all day long*" (p. 262). In Michelson's source, Bloomfield's *Menomini Texts* (p. 366, l. 33), we have the identical expression *kī'seh ā'hkwah* glossed, in this instance, as 'all that day.' However, the full sentence in which the expression occurs also contains the word 'sun' in the English translation (in a special locution 'the sun had almost set'), and Michelson apparently thought *ki·seh* was the regular word for 'sun.' On the other hand, Hockett, even though he cites M *ke·seh* as a cognate of F *ki·šeswa* 'sun, moon, month,' does not gloss the M word as 'sun.'
- ⁷ The sources of the forms quoted in the table are as follows: Hockett (1957) for F, O, and Pt; Bloomfield (1962) for M; Voegelin (1937-40) for Sh; Michelson (1939) for Mi; Voegelin (1946) for D; Day (1964) for Ab; Siebert (pers. comm.) for Pn; Haas (MS.) for Ps; Teeter (pers. comm.) for Ml; Harrington (1955) for Pw; Salzmann (1960) for Ar; Taylor (pers. comm.) for At; and Davis (1962) for Ch. Davis writes the Ch vowels as *e*, *o*, and *a*; for the first two I have substituted *i*, *u*.
- ⁸ Taylor (MS.).
- ⁹ The F, C, M, and O correspondences shown in Table 2 are taken from Bloomfield (1946), the Sh from Miller (1958), the D from Voegelin (1946), the B from Taylor (MS.), and the Pn from Siebert (pers. comm.). The correspondences for Mi, Ar, and Ch are taken from my own files. Pt is not shown because of its close similarity to O; Ab, Ps, and Ml are not shown because of their close similarity to Pn; and Pw is not shown because of dialect mixture in the source materials.
- ¹⁰ The reconstruction is taken from Bloomfield (1946), but the ending has been reshaped in some of the languages. The sources for the forms are the same as for Table 1 except as follows: Bloomfield (1946) for F, C, M, and O; Dunn in Voegelin (1937-40) for Mi; Petter (1913-15) for Ch.
- ¹¹ The evidence for the ? is taken from Michelson (1939). Dunn writes *kilswa* (Voegelin, 1937-40).
- ¹² The reconstruction **ki·šekwi* is taken from Hockett (1957), and the alternate **ki·šokwi* is based on the evidence from Ab and Ar. At is placed in the same column as Ar because of its close relationship to Ar whereas Ch is placed there because derivative forms not quoted seem to point to this interpretation.
- ¹³ Cf., O *-ikon*, as in *ni·wukon*, cited in Bloomfield's *Eastern Ojibwa* (p. 111).
- ¹⁴ In fact this is the analysis implied in Voegelin's *Shawnee Stems* . . . where the words for 'day' and 'luminary' are included in the same entry (p. 301).

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THE ALGONQUIAN INDEPENDENT INDICATIVE

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1.0. Introduction.¹ The present paper deals with that part of the Algonquian verb known as the independent indicative. Before entering into the detailed discussion, let us first describe the general features of the Algonquian verb and the place of the independent indicative in the verbal system.

1.1. All Algonquian verbal stems end in one morpheme of a class known as finals. In the basic pattern the rest of the stem consists of a root followed optionally by a medial. The inflectional endings follow the stem, and there are three mutually exclusive pronominal prefixes which may precede. The basic shape of an Algonquian verb is thus:

(prefix)—root-(medial-)final—endings

(See the examples in the next paragraph.) There are various derivative patterns and other complications in the formation of stems which need not be of concern here. What is of significance, however, is the fact that the finals fall into four classes and that each class is characterized by being inflected with a particular set of endings.

1.2. The principal division of the finals is into transitive and intransitive sets. The transitive finals come in pairs: the transitive animate (TA) finals, used for action on an animate object; and the transitive inanimate (TI) finals, used for action on inanimate objects. (The terms animate and inanimate refer to the two grammatical genders, to one of which every noun is assigned.) For example, in Fox *newa·pama·wa* 'I see him' the stem is *wa·pam-*, consisting of a root *wa·p-* and a TA final *-am-*; *ne-* is the first person prefix and *-a·wa* is the TA ending for action by first or second person singular on third person singular. In Fox *kewa·pata* 'you (sg.) see it' the stem *wa·pat-* ends with the TI final *-at-*; *ke-* is the second person prefix, and *-a* is the TI ending for action by first or second person singular on an inanimate object. The intransitive finals also come in pairs: the animate intransitive (AI) finals, used for action by animate subjects; and the inanimate intransitive (II) finals, used for inanimate subjects. Thus in Fox *sanakesiwa, sanakatwi* 'he, it is difficult' there is a pair of intransitive finals: AI *-esi-* and II *-at-*; in these forms there is no pronominal prefix, the subject being indicated by the endings *-wa* and *-wi*. Each of the four classes of inflectional endings is referred to according to the type of final it occurs after: the TA endings, the AI endings, and so on.

1.3. The verbal affixes are subdivided along another parameter into different sets used with each of the verbal orders, namely the independent, the conjunct, the imperative, and in some languages perhaps certain others. The independent order is formally distinct from the others, and only the most general descriptive statements about it will apply to them.

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1.4. In turn the independent order is subdivided into several modes. The number and formation of the various modes differ from language to language, but they are all derivable from the universally present and paradigmatically basic indicative mode.² Since the independent order is formally distinct from the other orders, and since within the independent order the indicative mode is the basis of the derivation of the other modes, it will be possible to discuss the independent indicative with little reference to the rest of the Algonquian verbal system. The morphology of each of the four classes of endings will be discussed in turn.

1.5. The TA endings fall into four formal categories, each characterized by a theme-sign added to the verbal stem. The theme-signs mark the four TA themes.

The theme-sign **-a-* marks theme 1. This theme makes the TA direct forms, which denote action by first or second person on third, and by third person proximate on third person obviative. (The normal form of the third person is the proximate form. But if two third persons appear in the same context, one of them must take a special set of obviate endings. Thus, there are forms for proximate on obviative and for obviative on proximate rather than simply for third person on third person. For example, in Ojibwa *okima·niwa·pama·* 'I see the chief,' the word for 'chief' (*okima·*) has the normal, proximate form. But in *okima·n owa·pama·n* 'he sees the chief,' the obviative ending *-n* is added to both verb and noun.) The third person indefinite-subject forms are also made from theme 1.³

The theme-sign **-ekw-* marks theme 2. This theme makes the TA inverse forms, which denote action by third person on first or second person and by obviative on proximate. Also built on this theme are the indefinite-subject forms for first and second person and the inanimate-subject forms.

The theme-sign **-i-* marks theme 3, which indicates action by second person on first person.

The theme-sign **-eθe(ne)-*⁴ marks theme 4, which indicates action by first person on second person. The forms built on themes 3 and 4 may be conveniently referred to as the you-and-me forms.

1.6. In the TI, evidence exists for **-am-*, **-a-*, and **-e-* as theme-signs. There is also, however, a subset of TI finals which take none of these and are thus referred to as pseudo-transitive (psTI) finals.⁵ Their inflection is otherwise identical with that of the regular TI finals. On the other hand, a number of TI and psTI stems can be used without reference to an object, and in fact some are always so used. These have intransitive meanings and are called pseudo-intransitives (psAI).⁶

1.7. The intransitive finals are not followed by theme-signs but add the endings directly. The II endings are **-wi* for the singular and **-wali* for the plural. Except for phonetic modifications this inflection is retained in all the languages for which I have data. This paper is concerned essentially with the development of paradigms, and since the II does not enter into paradigmatic relationships with any other forms it will not be further discussed.

1.8. The pronominal prefixes, coming before the verb stem, specify the person of what may be called the grammatical subject. They are **ne-* for the first person, **ke-* for the second person, and **we-* or **o-* for the third person. Wherever the first or second person appears in a form it is the grammatical

subject and is thus indicated by the appropriate prefix. In forms where the first person plural inclusive is the grammatical subject and in the you-and-me forms, **ke-* is used to the exclusion of **ne-*. The use of the third person prefix alternants is less straightforward and will be investigated in the main body of this paper.

1.9. The transitive theme-signs and the intransitive and psTI finals are followed by pronominal endings, which together with the prefixes specify the person and number of the grammatical subject. These may be called the subject endings. For example, in Fox *newa·pipena* 'we (exclusive) look on' and *newa·pama·pena* 'we (exclusive) look at him, them' the combination *ne—pena* indicates a first person plural exclusive grammatical subject. In addition, some transitive forms (including psTI forms but not the psAI) specify a grammatical object, for which the categories of gender, number, and obviation are indicated by what may be termed the object endings. These are also used in the noun and in the intransitive third person forms:

	Animate		Inanimate
	Proximate	Obviative	
Singular	*-a	*-ali	*-i
Plural	*-aki	*-ahi	*-ali

For instance, in Fox *newa·pama·waki* 'I look at them (animate)' *ne—w-* indicates a first singular grammatical subject, and *-aki* is the ending for animate plural object. In the forms built on theme 2, the grammatical subject is the logical object and vice versa. Thus in the inverse correspondent of the form just mentioned, *newa·pameko·ki* 'they (animate) look at me,' the logical roles of the two participants have been reversed, but the internal structure is the same (with the regular contraction of *-ekw·aki* to *-eko·ki*). It should be noted that the you-and-me forms constitute a separate system in which the categories of grammatical subject and object do not apply.

2.0. Chief Problems. An examination of Bloomfield's treatment of the Algonquian independent indicative reveals two unsolved problems. One is the unexplained variety of pronominal subject endings in the plural; the other is the inflection of the Ojibwa TA and TI, which Bloomfield describes as having taken over some forms from another mode.

2.1. The divergent plural endings can be classified into several sets. The one set which has reflexes in all the languages will be referred to as the n-endings:

1p	*-ena·n- ⁷
12	*-enaw- ⁷
2p	*-wa·w-
3p	*-wa·w-

These endings are also used, together with the pronominal prefixes, to indicate plural possessors in noun inflection. Only Arapaho, Cree, and Micmac retain the contrast between the exclusive and inclusive endings. Cheyenne seems to have reflexes of both, but in non-contrastive distribution. Otherwise the languages have generalized one or the other as the ending for both first person plural forms: Delaware, Fox, Illinois, Natick, Ojibwa, and Potawatomi use the originally exclusive *-*ena·n-*; Abnaki, Malecite, Menomini, and Penobscot have only the old inclusive *-*enaw-*.⁸

2.2. All the languages attest another set of pluralizing endings in addition to the *n*-endings, but the shape of this set differs slightly from language to language.⁹ If one mechanically reconstructs backwards from the various forms that are found, one arrives at four quasi Proto-Algonquian sets. This process amounts to factoring out the particular phonological development of each of the languages, and it thus throws into relief the morphological interrelationships of the forms. Distinction may be made between *m*-endings and *p*-endings, characterized respectively by **-m-* and **-p-*. Using *P* as a cover symbol for the labial element, these will be referred to together as the *P*-endings. The two types of *P*-endings are found in both long and short forms:

	Short P-endings		Long P-endings	
	<i>m</i>	<i>p</i>	<i>m</i>	<i>p</i>
1p	<i>** -mena</i>	<i>** -pena</i>	<i>** -mena·n</i>	<i>** -pena·n</i>
12	<i>** -mena</i>	<i>** -pena</i>	<i>** -menaw</i>	<i>** -penaw</i>
2p	<i>** -mwa</i>	<i>** -pwa</i>	<i>** -mwa·w</i>	<i>** -pwa·w</i>

The different languages regularly have reflexes of only one of these four sets, and, as will be demonstrated at length below, the functions of the *P*-endings in their various forms are entirely comparable. These facts suggest, if they do not prove, that the differences among the sets of *P*-endings are secondary and formal rather than primary and functional. In any case, even if this deduction is not considered proven, the absence of morphological contrasts between any of the sets, and the fact that they all share identical functional properties compel us to treat the *P*-endings as a single set, both in describing the attested paradigms and in tracing their history. This whole problem will be discussed more fully below in sections 6.1 and 6.3, but one compelling bit of evidence for the recent origin of the diversity of the sets should be mentioned here: the long *P*-endings would be phonologically impossible in Proto-Algonquian, since only short vowels could end a word.¹⁰ The following languages have the short endings: (with *p*) Fox and Shawnee; (with *m*) Arapaho, Illinois, Ojibwa, Potawatomi. The following have the long endings: (with *p*) Abnaki, Blackfoot, Malecite, Penobscot; (with *m*) Delaware, Menomini, Natick.¹¹

2.3. Although Bloomfield did not attempt to explain the diversity in the plural pronominal endings, he did offer a solution to the problem of the Ojibwa transitive paradigms. He considered the original TA and TI third person singular forms to be those reflected in Fox, Cree, and Menomini, for which he reconstructed TA **-e·wa* and TI **-amwa* (both with the prefix *o*). He suggested that Ojibwa had replaced the original third person forms with forms from "a mode which took all three prefixes and had apparently an *l* in its endings."¹² However, this explanation is not supported by the internal structure of the Ojibwa paradigms and their Potawatomi and Shawnee cognates:

	Ojibwa		Potawatomi			Shawnee	
TA:	3(')	3(')p	3	3'(p)	3p	3(')	3(')p
1	<i>ni—a·</i>	<i>-a·k</i>	<i>n—a</i>	<i>-an</i>	<i>-ak</i>	<i>ni—a</i>	<i>-a·ki</i>
2	<i>ki—a·</i>	<i>-a·k</i>	<i>k—a</i>	<i>-an</i>	<i>-ak</i>	<i>ki—a</i>	<i>-a·ki</i>
3	<i>o—a·n</i>	<i>-a·n</i>	<i>w—</i>	<i>-an</i>		<i>ho—a·li</i>	<i>-ahi</i>
TI:	O	Op	O	Op		O	Op
1	<i>ni—a·n</i>	<i>-a·nan</i>	<i>n—an</i>	<i>-anən</i>		<i>ni—a</i>	<i>-a·na</i>
2	<i>ki—a·n</i>	<i>-a·nan</i>	<i>k—an</i>	<i>-anən</i>		<i>ki—a</i>	<i>-a·na</i>
3	<i>o—a·n</i>	<i>-a·nan</i>	<i>w—an</i>	<i>-anən</i>		<i>ho—a</i>	<i>-a·na</i>

The identity of these paradigms is transparently clear. The only differences result from regular phonological and morphological changes. The following protosystem will account for the forms most easily:¹³

TA:	3	3'	3p	3'p
1	*ne—a·wa	-a·wali	-a·waki	-a·wahi
2	*ke—a·wa	-a·wali	-a·waki	-a·wahi
3	*we—	-a·wali		-a·wahi

TI:	O	Op
1	*ne—a·ni	-a·nali
2	*ke—a·ni	-a·nali
3	*we—a·ni	-a·nali

Two facts about these paradigms (which I shall call the Ojibwa type) contradict Bloomfield's suggestion. For one thing, their internal structure is entirely consistent; the third person forms are not at all dissimilar in structure to the forms of the other two persons—quite the contrary. The subject is indicated by a prefix and a subject-marking suffix (TA *-w-, TI *-n-);¹⁴ the object is indicated by the object endings. The hypothesis that the third person forms were introduced from another mode is clearly inconsistent with the observed regularity of the paradigm. Secondly, there is simply no **l* here that characterizes the third person forms; the only **l* is that of the ending **-ali*, the regular object ending for obviative singular and inanimate plural which also appears in forms for first and second person subject. Bloomfield's suggestion must be rejected; the discrepancy between the Ojibwa-type paradigm and the paradigms of Fox, Cree, and Menomini has to be explained some other way. Actually, it turns out that this problem is closely related to the problem of the diversity of the plural endings.

3.0. The Central Languages. In the present investigation of these problems I shall at first confine myself to data from the languages which have come to be known as the Central Algonquian group. The hard core of this group consists of the languages which Bloomfield used as the basis for the reconstruction of what he called Proto-Algonquian: Fox, Cree, Menomini, and Ojibwa. It has been recognized that Potawatomi and Shawnee also belong to this group, and they will be considered together with the other four.¹⁵

3.1. The Ojibwa paradigms will be dealt with first, since they show clearly the interrelatedness of the two problems and contribute substantially to their solution. In Ojibwa the *n*-endings are only used for the TA and TI, and within the TA they are not used for the indefinite-subject or you-and-me forms. In the latter two cases, as also in the AI and the psAI, *P*-endings are used. In addition to the shape of the subject ending, the *n*-ending and *P*-ending paradigms contrast on two other points. The *n*-ending sets have *o-* (the regular reflex of **we-*) as the prefix of the third person forms, and they always specify an object (though the loss of final vowels in Ojibwa means that the object ending is phonologically overt only when plural or obviative). The *P*-ending sets do not have a third person prefix and do not specify a grammatical object.

Especially revealing is the contrast between the TI paradigm and the psAI paradigm. The psAI is not distinct from the TI outside the independent order. In the independent, however, the psAI contrasts with the TI by having *P*-endings

in the first and second plural and a theme-sign *-am* in the singular and third plural. Now the functional difference between the psAI and the TI is that the former does not include reference to an object whereas the latter does. For example:

psAI	3	<i>te·pwe·ttam</i>	'he believes'
	12	<i>kite·pwe·tta·min</i>	'we (incl.) believe'
TI	3	<i>ote·pwe·tta·n</i>	'he believes it'
	12	<i>kite·pwe·tta·na·n</i>	'we (incl.) believe it'

(The conjunct indicative, third singular, for both psAI and TI is *te·pwe·ttank*.) In these forms a living opposition is obvious. On the one hand, in the psAI there is a paradigm which takes two prefixes (third person *o*), P-endings, and does not specify a grammatical object; this type of paradigm will be called the absolute type. On the other hand, in the TI the paradigm has three prefixes (third person *o-*), n-endings, and does specify a grammatical object; this type of paradigm will be referred to as the objective type. Further evidence for the functional difference between these two inflectional types is provided by the you-and-me forms, which do not have the category of grammatical object and use the P-endings, sometimes to mark the subject and sometimes to mark the object. (The internal structure of the you-and-me forms is the same in all the languages.)

The various dialects of the Ojibwa group appear to differ very little from the Eastern Ojibwa dialect which has furnished the data for the present discussion. The Ojibwa described by Baraga¹⁶ and the Saulteaux of Dumouchel and Brachet¹⁷ have extended the ending *-min* to replace the *-na·n* of the first person plural in the TI. (The *-min* retains its absolute character and does not indicate a plural object.) Potawatomi shares this change, and it has further extended this P-ending to the TA direct (but not to the inverse).¹⁸ Algonkin and the northern Ojibwa dialects retain the original distinction of number in the obviative, which has been lost elsewhere in the group.¹⁹ It is not clear exactly what the origins of the Potawatomi third person AI (and psAI) endings are, but they seem to be entirely secondary responses to the extensive phonological changes in that language.

3.2. The Shawnee paradigmatic system is identical with that of the Ojibwa group, except in two places where it agrees instead with Fox. For one thing the P-endings have *p* instead of *m*; for another the TA indefinite subject paradigm has the Fox formation with *-pi* in the first and second singular. By an innovation parallel to that of Potawatomi, Shawnee has extended the first plural P-ending into all the n-ending paradigms except the TA inverse.

3.3. The Fox paradigms, though quite different from the Ojibwa and Shawnee system, attest the same three-way contrast between the n-ending paradigms and the P-ending paradigms. Like Eastern Ojibwa, Fox has P-endings in the AI and in the indefinite-subject and you-and-me forms of the TA, but it also has them in the TI, the TA direct, and the TA inanimate-subject paradigms. However, all these transitive paradigms have the same complex of characteristics found in the Ojibwa and Shawnee absolute formations: two prefixes, P-endings, and no specification of a grammatical object.

The only exception to this latter generalization is in the first and second persons singular of the TA direct paradigm. In this connection it will be instructive to compare the Fox forms with the reconstructed Ojibwa type paradigm:²⁰

	Fox		Ojibwa type	
	3(')	3(')p	3(')	3(')p
1	<i>ne—a·wa</i>	<i>-a·waki</i>	* <i>ne—a·wa</i>	<i>-a·waki</i>
2	<i>ke—a·wa</i>	<i>-a·waki</i>	* <i>ke—a·wa</i>	<i>-a·waki</i>
3	<i>—e·wa</i>		* <i>we—a·wali</i>	<i>-a·wahi</i>
1p	<i>ne—a·pena</i>		* <i>ne—a·na·na</i>	<i>-a·na·naki</i>
12	<i>ke—a·pena</i>		* <i>ke—a·nawa</i>	<i>-a·nawaki</i>
2p	<i>ke—a·pwa</i>		* <i>ke—a·wa·wa</i>	<i>-a·wa·waki</i>
3p	<i>—e·waki</i>		* <i>we—a·wa·wali</i>	<i>-a·wa·wahi</i>

The skewness of the Fox paradigm is as obvious as the homogeneity of the Ojibwa type. It is not the latter that has borrowed forms; rather it is Fox which has evidently introduced objective forms for the first and second persons singular. These forms may be explained as having been introduced from a paradigm of the Ojibwa type, if the previous existence of such a paradigm in some earlier stage of Fox is assumed.

Now if *-a·wa* and *-a·waki* are intrusive in the Fox paradigm, they must have replaced some previously existing forms. An examination of the internal structure of the paradigm provides a basis for postulating what these original forms were. Outside of the two forms in question, the Fox TA direct consists of the theme sign *-a·-* followed by the same set of endings that appears in the AI. The third person suffix *-wa* conditions the change of preceding *-a·-* to *-e·-*, just as in AI verbs which have a stem in *-a·-*. Thus, since the AI has a zero ending in the first and second persons singular, it is reasonable to postulate an original zero ending for the corresponding persons of the TA. This conclusion follows automatically from the parallelism of the forms (in Fox as in Proto-Algonquian only short vowels are permitted in final position):

	AI	TA
	<i>nepa·-</i> 'sleep'	<i>wa·pama·-</i> 'look at' (Theme 1)
1p	<i>nenepa·-pena</i>	<i>newa·pama·-pena</i>
3	<i>nepe·-wa</i>	<i>wa·pame·-wa</i>
1	<i>nenepa</i>	* <i>newa·pama</i> (Original form)

Internal reconstruction thus indicates that at some earlier stage Fox had a TA direct paradigm of the absolute type: two prefixes, P-endings, no specification of the object.²¹

The uniformly absolute structure postulated for an earlier stage of the Fox TA direct is exactly paralleled by the formation actually found in the TI: theme-sign (*-am~ -a·*) plus AI endings (including zero in the first and second singular). The Fox TI is thus cognate with the Ojibwa psAI²² and not with the Ojibwa TI:

	Fox TI	Ojibwa psAI	Ojibwa TI	
	O (p)		O	O (p)
1	<i>ne—a</i>	<i>ni—am</i>	<i>ni—a·n</i>	<i>-an</i>
2	<i>ke—a</i>	<i>ki—am</i>	<i>ki—a·n</i>	<i>-an</i>
3	<i>—amwa</i>	<i>—am</i>	<i>o—a·n</i>	<i>-an</i>
1p	<i>ne—a·pena</i>	<i>ni—a·min</i>	<i>ni—a·na·n</i>	<i>-in²³</i>
12	<i>ke—a·pena</i>	<i>ki—a·min</i>	<i>ki—a·na·n</i>	<i>-in²³</i>
2p	<i>ke—a·pwa</i>	<i>ki—a·m</i>	<i>ki—a·na·wa·</i>	<i>-n</i>
3p	<i>—amo·ki</i>	<i>—amo·k</i>	<i>o—a·na·wa·</i>	<i>-n</i>

The Fox TI and the Ojibwa psAI are structurally identical in every detail. After the loss of final vowels, Ojibwa extended the theme-sign *-am* from the third singular to the first and second singular.²⁴ Since purely synchronic considerations require the analysis of Ojibwa third singular *-am* as morphophonemically *-am* plus *-wa*,²⁵ this innovation amounts to restoring the original structure of the singular endings: theme-sign plus zero / theme-sign plus *-wa*.

The agreement between the Fox TI and the Ojibwa, Potawatomi, and Shawnee psAI points to the existence of a Proto-Algonquian paradigm of the absolute type formed on TI stems and having a theme-sign **-am-* in the third person.²⁶ On the other hand the cognate TI formations in Ojibwa, Shawnee, and Potawatomi require the postulation of another paradigm also formed on TI stems but of the objective type. The futility of Bloomfield's attempt to explain the Fox TI and the Ojibwa TI as coming from the same protoparadigm is evident from the chart discussed in the preceding paragraph. The internal structure of the two sets is distinct: the Fox formation is of the absolute type, whereas the Ojibwa is objective. None of the corresponding forms agree either formally or structurally. Bloomfield attempted to explain these differences piecemeal: the first and second singular forms were cognate (he did not discuss the formal and structural differences); in the third person Fox showed the original forms, and Ojibwa had borrowed its endings from another paradigm; the first and second persons plural attested an unexplained divergence. But the Ojibwa TI paradigm is entirely homogeneous, as has been seen (§2.3), and the ending for the first and second singular is identical with that of the third singular; the postulation of paradigm mixture as the source of the Ojibwa formation is out of the question. The degree of difference between the two types points to the existence in Proto-Algonquian of two separate paradigms formed on the TI stem; the fact that the reflexes of both exist side by side in Ojibwa and Shawnee rules out the possibility of one of them being a secondary innovation. Similarly, in the TA the original Fox paradigm (recovered by internal reconstruction) points to a proto paradigm of the absolute type, whereas Ojibwa, Potawatomi, and Shawnee indicate an original formation of the objective type. These facts, together with the combined paradigm which Fox attests, require the postulation of two TA paradigms in Proto-Algonquian, one absolute and one objective. But though the data considered so far point to a double transitive paradigm of some sort for PA, they do not clearly indicate the functional value which the absolute objective contrast might have had. It seems likely, however, from the formal difference and from the function of the contrast in Ojibwa that the objective forms were in some way more marked with reference to the logical object than the absolute forms were. The answer to the problem will become clear only when the evidence of some of the Eastern Languages is examined; for the moment the double paradigm may be assumed on the basis of the formal evidence alone.

There remains to be considered the formation of the Fox TA inverse paradigm, which contrasts sharply with the other transitive sets that have been discussed. Although the third person forms have an absolute structure parallel to that of the TA direct and the TI, the first and second persons, singular and plural, have an objective formation identical to that of Ojibwa. A similar situation seems to pertain in Miami-Illinois, and in fact none of the Algonquian languages examined in this paper present any evidence for the existence of absolute forms

in the first and second persons of the TA inverse in Proto-Algonquian. On the other hand, the absolute/objective contrast is well attested for the third person, the distribution among the languages being the same as for the third person direct. These peculiarities of the TA inverse paradigm can only be explained by delving into the pre-Proto-Algonquian development of the system. Some suggestions on this score will be made below in sections 6.1 and 6.2.

3.4. The transitive paradigms in Cree and Menomini are readily explainable in terms of the absolute/objective double system that has been postulated. Both these languages have undergone a process of paradigm blending which has left them with absolute forms in the third person and the reflexes of the objective paradigms in the first and second persons. This pattern is clearly seen in the TA, where the third person has endings which are the exact correspondents of Fox *-e·wa*, *-e·waki* (Cree *-e·w*, *-e·wak*; Menomini *-ε·w*, *-ε·wak*), whereas the first and second person forms correspond exactly to those of Ojibwa.

The TI paradigms have undergone the same blending process, but each of the two languages also attests subsequent modifications which have given some forms a divergent aspect. The third person forms correspond directly to the Fox TI and the Ojibwa psAI (Cree *-am*, *-amwak*; Menomini *-am*, *-amok*), and the Menomini first and second singular forms agree with the Ojibwa TI (*-a·n*, *-a·nan* in both languages), but the rest of the endings require additional explanation. For one thing, in contrast to the uniform TI theme-sign *-a·-* of Ojibwa and Shawnee, Menomini has *-a·-* in the singular and *-ε·-* in the plural, and Cree has *-ε·-* throughout. A TI objective theme-sign **-ε·-* is also reflected in Cheyenne and the Eastern languages, and its claim to antiquity is certainly equal to that of **-a·-*. It is Menomini, which has reflexes of both, that provides the clue to the original situation, for here purely descriptive considerations require that *-ε·-* be set up as the basic form of the theme-sign and that *-a·-* be explained as an allomorphic variant conditioned by the following *-n*.²⁷ The same morphophonemic alternation appears in the derivation of nouns by noun final *-n*:²⁸ AI verbs with final *-ε·-* form nouns in *-a·n*.²⁹ Thus, from the AI verb *wa·nehkew* 'he digs' (stem *wa·nehkε·-*) comes *wa·nehkan* 'pit' (basic form *wa·nehka·n*); compare *nepo·ne·menaw* 'we (exclusive) put it in the pot' (*-ε·-mEnaw*) and *nepo·na·n* 'I put it in the pot' (*-ε·-n > -a·n*). The *-a·-* is further shown to be a morphophonemic and not a morphological variant by the fact that *-ε·-* is used in the non-indicative modes of the independent order, where *-m* replaces *-n* in the first and second persons singular; compare with the form last given the quotative *nepo·ne·men* 'it is said that I put it (them) in the pot' (*-en* is the quotative ending). In view of the archaic nature of this *-a·-/-ε·-* alternation, the Menomini paradigm must be taken to reflect the Proto Algonquian situation, as Bloomfield correctly saw.³⁰ Whereas in the TI absolute the theme-sign was **-am/-a·-* (as reflected in the Fox and Illinois TI and the Ojibwa and Shawnee psAI), in the TI objective the theme-sign was **-ε·-*, which became **-a·-* morphophonemically before the singular ending **-en*. Similarly, in the TA forms for inanimate subject the absolute paradigm has a theme-sign (**-ekw-* plus **-i-*) followed by the regular absolute (equals AI) endings, and the objective has **-ekw-* plus the endings of the TI objective. Compare **-ε·-en-i* in Ojibwa *niwa·panta·n* 'I see it' with **-ekw-en-i* in *niwa·pamikon* 'it sees me.' The discrepancy between the TI objective theme-sign of Cheyenne and Cree

and that of Ojibwa and Shawnee results from the fact that the former pair of languages generalized one variant (*-e·-) and the latter pair the other (*-a·-).

There remain to be treated the endings of the first and second persons plural in the TI of the two languages. In this connection the AI paradigms are examined:

	Cree	Menomini
1	<i>ni—n</i>	<i>nε—m</i>
2	<i>ki—n</i>	<i>kε—m</i>
3	<i>—w</i>	<i>—w</i>
1p	<i>ni—na·n</i>	<i>nε—mEnaw</i>
12	<i>ki—na·naw</i>	<i>kε—ʔɜ1</i>
2p	<i>ki—na·wa·w</i>	<i>kε—mwa·w</i>
3p	<i>—wak</i>	<i>—wak</i>

These forms are identical with the respective TI endings, except for the first and second singular of Menomini. But even here the non-indicative modes have *-m* (as has been mentioned), and the TA inanimate-subject forms have *-m* even in the indicative: *nεnε·ʔnekom* 'it kills me.' This ending *-Ekom* must be a rebuilding of the reflex of PA **-ekweni*, the unchanged descendant of which shows up as Ojibwa *-ikon* (with archaic *-n*; see the discussion and example at the end of the preceding paragraph). Also, the *-m* of the first and second singular of the AI is clearly an innovation, since the Proto-Algonquian forms had a zero ending (cf., Fox, Ojibwa, Shawnee, and Miami-Illinois). Additional evidence that the Menomini AI endings are a recent development is provided by the existence of long P-endings in the plural, since, as was mentioned above at the end of section 2.2, the endings of this shape must be of recent origin. That they could not have existed as such in Proto-Algonquian appears readily from (1) the morphological fact that the P-endings were not followed by any morpheme and (2) the phonological fact that Proto-Algonquian words could end only in a short vowel. Now it is evident from inspection that the long m-endings are equivalent to *m* plus the n-endings, and the original AI plural endings must have been the short P-endings reflected in Fox, Ojibwa, Shawnee, and Illinois. The long P-endings are simply the short P-endings rebuilt with an eye to making them more similar to the other endings with the same meaning, the n-endings. This process was, in fact, merely a regeneration of the original internal structure of the short P-endings themselves, as will be seen below in section 6.1. After the creation of the long P-endings the *m* was segmented out and extended to the singular, where it has the function of preserving the stem-final vowels which would otherwise be lost. This *m* is a semantically empty filler morpheme that Bloomfield merely says "appears in the forms of the independent verb that do not take" third-person *-w* or TI singular *-n*.³² Menomini has thus created a new AI paradigm, at least as far as the first and second persons go, and it is a general linguistic tendency for new creations to be extended beyond the locus of their origin. Thus, in Menomini the new AI endings have replaced the old TI objective forms everywhere except in the first and second persons singular of the TI indicative. As far as the precise function of this innovation in the TI is concerned, it is probably significant that, as a result, the TI is doubly distinguished from the TA (by theme-sign and by pronominal endings), whereas the negative order makes no distinction between the TA direct and the TI,³³ nor between the TA inverse and the TA inanimate-subject forms. The lack of an animate/inanimate contrast in the negative may have triggered the polarization of this contrast

in the independent. In this connection it should also be noted that the blending of the transitive paradigms has resulted in a uniform two-prefix structure in the entire independent order, which is opposed to the three-prefix negative. (Similarly, Cree opposes the two-prefix indicative to a three-prefix preterite.)³⁴

In Cree a similar process has operated, but in the opposite direction. Here the rebuilding has been in the TI endings, and it is these which have been extended to the AI. The renewed TI endings have also been adopted in the TA you-and-me forms, and it may thus be stated that, after being created in the TI, this new set everywhere replaced the old P-endings. As a sort of backwash from this new function, the endings in the TI, although originally objective, have adopted the absolute pattern of not marking the plural object.³⁵ The development of this new set of endings was essentially a matter of adding an unoriginal *-na·-* before the endings of the first plural inclusive and second plural. This *-na·-* was apparently first introduced into the second plural, thus generalizing *n* after the theme-sign. This must have happened after the blending of the absolute and objective paradigms, since in the TA inanimate-subject forms the *second* plural has the *-na·-* (which must have been adopted on the analogy of the TI) and the *third* plural does not (as, after the blending, there was no other third plural *n*-ending). The extension of *-na·-* in Cree must therefore be independent of the parallel development in Ojibwa and Shawnee, which have *-na·-* in both the second and third plural of both the TI and the TA inanimate-subject paradigms. Contrast Ojibwa *owa·pamikona·wa·* 'it sees them' with Cree *wa·pamikowa·w* 'id' (with analogical loss of the prefix). In Cree *-na·-* was subsequently extended to the inclusive, a form which does not survive in Ojibwa or Shawnee.³⁶

The blended transitive paradigms of Cree and Menomini fully support the postulation of the original double system (having both absolute and objective forms) that is indicated by the other Central languages. It remains to discuss the Eastern and Plains languages.

4.0. The Eastern Languages. In this section will be considered the reflexes of the Proto-Algonquian independent indicative in the following six Eastern languages: Abnaki (St. Francis), Delaware (of Oklahoma), Malecite, Micmac, Natick, and Penobscot. It will be shown that the formations in these languages can be completely explained starting from the protosystem which has been postulated on the basis of the paradigms attested in the Central languages. In addition, the situation in some of these languages will elucidate the function of the original double transitive system.

4.1. It has been a matter of record since 1884, when Chief Joseph Laurent published his *New Familiar Abenakis and English Dialogues*, that the Abnaki TA direct and TI both have a double system. In each case there is an opposition between what he called the finite conjugation and the indefinite conjugation. The finite forms are used whenever there is no nominal object and are also used with an object to give the meaning of the English definite article. The indefinite forms are only used when the verb governs a nominal object and they convey the meaning of the English indefinite article. There is also a psAI similar to that of Ojibwa, which uses the TI indefinite endings. In the following examples the finite forms precede the indefinite: *w'namitonal kchi nebesal* 'he sees the great lakes' but *'namito kchi nebesal* 'he sees some great lakes'; *n'waniadon môni* 'I lost the money' but *n'waniado môni* 'I lost some

money'; *w'namihô tmakwa* 'he sees the beaver, or beavers' but *'namiha tmakwa* 'he sees a beaver, or beavers'; *k'nodamen engine altôguak?* 'Do you hear the noise of the engine?' but (psAI) *k'nodam . . . ?* 'Did you hear (that . . .)?' like the indefinite TI *k'wajônem nbizonal* 'Have you any medicines?' In the first and second persons singular of the TA indefinite direct (where the original ending **-a* would have been lost), the theme sign *-ô* has been restored, making these two forms homophonous with the corresponding finite forms; thus *n'namihô tmakwa* means both 'I see a beaver' and 'I see the beaver.' However, this indefinite *-ô* retains the peculiarity of not showing inflection for plural object: *n'wajônô nguedôz awôssisak* 'I have six children'; *n'meskawô nisoak wski alnôbak* 'I have found two young fellows.'³⁷

Now the absence of inflectional cross-reference to the object is a characteristic of the absolute transitive paradigms whose reflexes in the Central languages have been discussed above. And in fact all the structural features which differentiate the reconstructed absolute and objective paradigms are used in Abnaki to differentiate the indefinite and the finite. The indefinite has P-endings, two prefixes, and does not mark the object; the finite has n-endings, three prefixes, and does have inflectional reference to the object. Furthermore, the details of the forms in the two Abnaki TA paradigms correspond to those in the reconstructed double system, and the Abnaki TA finite and indefinite can be derived directly from the TA objective and absolute paradigms that have been reconstructed. In addition to the regular phonological changes, a small number of morphological innovations have affected these forms. As in Ojibwa and Shawnee,³⁸ the plural- and obviative-object forms have been rebuilt on the singular wherever the latter has *-ô* (*< *-a·wa*), that is, in all the direct forms except the first plural and in the second (and presumably third) plural of the inverse. Also, Abnaki has generalized the inclusive ending at the expense of the exclusive (§2.1), and it has lost the distinction of number in the obviative by generalizing the plural ending **-ahi*, which gives *-a~ -ô*. I have mentioned above the fact that the TA indefinite has taken over the ending of the finite in the first and second persons singular. The Abnaki TA inverse corresponds to that of all the Central languages, to judge from the attested forms. Laurent gives only the first and second persons, which have the original objective endings (see §3.3, end). He gives no obviative-on-proximate forms and no TA inanimate-subject forms. The AI has long p-endings, rebuilt as in Menomini. The TI double paradigm shows an extensive rebuilding, which is shared by the other Eastern languages. I will consider this development after examining the more directly inherited paradigms.

4.2. Except for minor differences, Natick has a double transitive paradigm which corresponds directly to that of Abnaki as far as the forms are concerned. In the employment of the system, however, Natick differs. In the TA direct and in the TI the objective forms (corresponding to the Abnaki finite) are used only when there is no nominal object, the absolute paradigms being used whenever there is such an object. There is also a psAI, which is equivalent in form to the absolute TI. Thus, the objective/absolute contrast is entirely non-functional in the TA and the TI proper; it serves only to distinguish between the TI objective and the psAI. In the following examples I use Trumbull's convention of indicating the absolute forms by parenthesizing the pronominal object of the gloss: *pish wussogképwôh* 'he shall bite him' but *sogkep8au* 'he bites (him)';

wunnehnekikomun 'he tears it in pieces' but *nehnekikom* 'he tears or rends (it)'; *wunnumwohtauin* 'he filled it' but *pish numwohteau* 'he shall fill (it)'; (psAI) *waantam* 'he is wise.'³⁹ Like the other Eastern languages, Natick has long P-endings wherever Proto-Algonquian had short P-endings, but in Natick and Delaware these are m-endings in contrast to the p-endings of all the more northerly members of the group. Natick has paralleled Menomini in the introducing of an *-m* as an ending for the first and second singular of the AI. However, the factors governing its use are not clear: *nummonchem* 'I go,' but with the preterite *-p nummonchip* 'I went'; and contrast further *nutap* 'I sit' and *pish kenup* 'thou shalt die.'⁴⁰

4.3. Delaware has eliminated the double paradigm in the TA, where it has retained the objective forms. The TI, on the other hand, has both absolute and objective endings, used as in Natick. To quote Voegelin: "When the noun is not given, the goal is explicitly marked by the verb: *nna·təmóna* 'I went after it (plural).' But when the noun is given in the sentence, the same verb appears in animate intransitive form: *nná·təm téntay* 'I'm going after the fire'."^{40a} It seems probable that the mechanical alternation of the absolute and objective paradigms that is found in Natick and Delaware reflects the Proto Algonquian use of the double transitive system. The more specialized function that Abnaki attests would then be the result of an innovation, the use of the objective forms before nouns.

There are a few minor developments which are shared by Delaware and Natick. In the first plural of the objective forms, both languages have generalized the exclusive n-ending (**-ena·n-*) and both have rebuilt the TA direct ending **-a·na·n-* to **-a·wena·n-*, thus generalizing **-a·w-* throughout the paradigm (Delaware *-á·wəna*; Natick *-óun*, with *ou* as in English *out*). On the other hand, to judge by the forms given in Zeisberger's none-too-accurate grammar, late-eighteenth-century Delaware had generalized the obviative singular ending **-ali* (>*-al*), whereas Natick, like Abnaki, has generalized the plural ending **-ahi* (>*-oh*).

4.4. In the Eastern languages north of Abnaki and south of Micmac the original double transitive paradigm has undergone the same functional development as in Ojibwa and Shawnee; the TA absolute forms have been lost completely, and the TI absolute paradigm survives only in psAI use. In Micmac the independent indicative has been replaced by a conjunct formation, but forms originally of the independent order survive in the negative imperative, the transitive forms of which are reflexes of the original negative absolute. However, there is no actual direct contrast of absolute and objective forms in the present-day Micmac system.⁴¹

4.5. As has been seen, the Eastern languages have largely gone separate ways in their functional utilization of the Proto-Algonquian paradigms. Antedating this diversity, however, was a multi-staged formal innovation which is reflected in all the Eastern languages from Powhatan through Micmac. Other things being equal, it demonstrates that these languages constitute a genetic subgroup within Algonquian. It therefore seems necessary to assume that these languages descend from a common protolanguage (Proto-Eastern Algonquian, PEA) which had undergone a certain amount of innovatory development after its separation from Proto-Algonquian.

The Eastern Algonquian innovation was a thorough rebuilding of the TI paradigm that had the effect of regularizing and hence stabilizing the morphological relationship between the two halves of the double paradigm and that resulted in the creation of a new set of endings used to form a new submode of the independent order. The first of the succession of morphological reshapings which resulted in the new paradigms came in response to a phonological change—the loss of final vowels.⁴² The absolute first and second singular ending **-a* was dropped, and the third singular **-amwa* became **-am*. The disruption which these changes caused in the paradigm was overcome in exactly the same manner that the identical disruption was overcome in the Ojibwa psAI (§3.3). In the resulting paradigm, the theme-sign for the singular and third plural was **-am*, contrasting with the **-a* in the first and second plural. This is as far as Ojibwa has gone in rebuilding its paradigm, but Proto-Eastern Algonquian continued the process one step further and generalized **-am* throughout the paradigm:

	PEA I		PEA II
1	<i>*ne—am</i>		<i>*ne—am</i>
2	<i>*ke—am</i>		<i>*ke—am</i>
3	<i>*—am</i>		<i>*—am</i>
1p	<i>*ne—a·Pen(a·n)</i>	} →	<i>*ne—amiPena·n⁴³</i>
12	<i>*ke—a·Pen(aw)</i>		<i>*ke—amiPenaw⁴³</i>
2p	<i>*ke—a·P(wa·w)</i>		<i>*ke—amiPwa·w⁴³</i>
3p	<i>*—amo·k</i>		<i>*—amo·k</i>

Except for the developments peculiar to the individual languages, this is the TI absolute paradigm reflected in Eastern Algonquian.

In order to explain the development of the Eastern Algonquian objective TI, it will be necessary first to consider the functional relationship between the two halves of the TI double paradigm. The two relevant contexts in which a TI verb could occur were with a nominal object and without a nominal object. In the former case it was entirely predictable that the absolute forms would be used, but when there was no nominal object there was the possibility of either objective forms (the true TI) or absolute forms (psAI). The absolute paradigm is thus the unmarked member of the opposition, for it is the one that is used in the context where the opposition is neutralized (before nominal object). In Kuryłowicz's terms, the absolute paradigm is the "forme de fondation" and the objective paradigm is the "forme fondée." According to his second law of analogy, analogical change will rebuild the latter on the model of the former,⁴⁴ and this is precisely what happened in the Proto-Eastern Algonquian TI.

The objective paradigm was rebuilt in two stages—first the singular and then the plural. The reshaping of the singular involved replacing **-a* with **-am*. This change may have been simultaneous with the replacement of **-a* by **-am* in the plural of the absolute paradigm. Part of the function of this change was to leave **-a* as an exclusively TA theme-sign. With **-am* as the TI theme-sign, the **-en⁴⁵* was then interpretable as a suffix marking the objective paradigm, thus giving formal expression to the functional relationship between the two halves of the TI paradigm.

The reshaping of the singular set the stage for the operation of a pattern of paradigm rebuilding the generality of which has been explicated by Watkins.⁴⁶ This pattern has the following stages: (1) through phonological or morphological

change (here the latter) the old mark of the third person singular (here **-en*, the general mark of the singular) loses its identity as such (here **-en* takes on the new function of marking the objective paradigm); (2) the third person singular form is then reanalysed as consisting of suffix plus zero pronominal ending; (3) the paradigm is rebuilt by adding the old endings to the third person singular form. In the present case, this has given the paradigm the uniform structure of TI theme-sign (**-am*) + objective marker (**-en*) + pronominal endings (zero in the singular). The stages in the reshaping of the TI objective are given here:

	PEA I		PEA II		PEA III
1	<i>*ne—a·n</i>	}	<i>*ne—amen</i>	}	<i>*ne—amen</i>
2	<i>*ke—a·n</i>		<i>*ke—amen</i>		<i>*ke—amen</i>
3	<i>*we—a·n</i>		<i>*we—amen</i>		<i>*we—amen</i>
1p	<i>*ne—e·na·n</i>	}	<i>*ne—e·na·n</i>	}	<i>*ne—amene·na·n</i>
12	<i>*ke—e·naw</i>		<i>*ke—e·naw</i>		<i>*ke—amene·naw</i>
2p	<i>*ke—e·wa·w</i>		<i>*ke—e·wa·w</i>		<i>*ke—amene·wa·w</i>
3p	<i>*we—e·wa·w</i>		<i>*we—e·wa·w</i>		<i>*we—amene·wa·w</i>

(All along, a plural object is indicated by **-al*.) The new objective paradigm which is thus arrived at is, with incidental modifications in the individual languages,⁴⁷ the paradigm found throughout the Eastern group. In Delaware and Natick it has retained its original function as a true objective paradigm, used to indicate reference to an object when the latter is not expressed by a noun. The Abnaki innovation in the use of this paradigm has been discussed above. Penobscot and Passamaquoddy-Malecite, on the other hand, attest the same development that is found in Ojibwa and Shawnee: in both the TA and the TI the objective paradigm has been generalized as the sole transitive paradigm—the formal continuation of the absolute TI survives only as a psAI. The meagre remains of Powhatan contain a number of TI singular forms that end in a reflex of **-amen* and that demonstrate the membership of Powhatan in the Eastern Algonquian group.⁴⁸

The extensive developments in the Eastern Algonquian TI in effect created a new set of endings with a very limited function, and it is not surprising that these were pressed into additional service. Minus the TI theme-sign **-am*, these endings were added directly to the regular theme-signs (or intransitive finals) to form a subordinate mode that is attested throughout the Eastern Algonquian group. In Delaware this is Voegelin's "directive predicator," which "directs attention to a collocated noun or particle as the focus of attention."⁴⁹ Laurent calls the corresponding paradigm in Abnaki the subjunctive.⁵⁰ Siebert has tentatively labelled the Penobscot forms the indefinite mode and says they are used "to express a wish or request, and a mild or polite command, weaker than the imperative; to express hearsay narrative; indefinite past action not witnessed by the speaker; and indefinite future or desired action."⁵¹ These forms also exist in Natick and Passamaquoddy-Malecite, but their precise function in these languages has not been determined. In Micmac the independent indicative has been eliminated, being replaced by an originally conjunct formation, and this newly created paradigm (called the subjunctive) is the only survival of independent order (except for the second person negative forms which are used as the prohibitive). In all the languages the fact that this formation originated in an objective paradigm is indicated by the three prefixes which it requires, even in intransitive forms. However, the transitive forms do not take object endings.

5.0. **The Plains Languages.** It has been shown that the independent indicative (and related formations) in all the Central and Eastern Algonquian languages can be derived from the particular protoparadigm that has been postulated. It remains to be seen if the paradigms of the Plains languages (Arapaho, Cheyenne, and Blackfoot) can also be derived from it. The facts presently available favour the hypothesis that this is indeed the case and that the reconstructed protoparadigm is, in fact, the paradigm of the Proto-Algonquian independent indicative.

There are, however, difficulties which prevent a rigid demonstration of this at the present time. The available material on the Plains languages tends to be somewhat intractable, even where modern descriptions are at hand, since these languages have undergone much more extensive phonological alteration than the Central and Eastern groups, and since the details of their historical phonology have not been worked out. For these reasons it will not be possible to explain all the attested forms in the Plains languages. Instead, the apparent history of the Proto-Algonquian independent indicative in each of them will be sketched, and certain problematical details will simply be left unexplained.

5.1. In Arapaho the primary function of the independent indicative has been taken over by the conjunct participle, but there are originally secondary functions (negative, interrogative, negative-interrogative, narrative past) which the old paradigm still retains. Basically, the Arapaho reflex of the independent indicative (called by Salzmänn 'the nonaffirmative submode of the indicative') continues the absolute forms of Proto-Algonquian. However, like Fox it has objective forms in the first and second singular of the TA; like the Eastern languages it has extended the theme-sign **-am* to the plural of the TI. A unique innovation is the mixture of m-endings and n-endings in the plural-marking subject endings which are used throughout the paradigm; the first plural exclusive and the second plural have *-be*, whereas the inclusive has *-n* (the regular reflex of **-naw-*), except in the AI where it has *-noo*. This *-noo* could be the regular reflex of the exclusive **-na·n-* (preserved in the nominal possessive suffixes), in which case its extension to the AI would be a recent development explained by reference to the general breakdown of the exclusive-inclusive distinction among most Arapaho speakers today.⁵² The reflexive paradigm, which is otherwise a regular AI paradigm, preserves the original *-n* in the inclusive.

The second plural ending *-be* is intriguing because it cannot be the regular continuation of PA **-mwa*, which would have been lost completely (compare *héθ* 'dog,' from **aθemwa*). On the other hand, it looks suspiciously like the corresponding Cheyenne form *-me*, which is a regular development (compare *hótame* 'dog'), and a relatively recent borrowing seems to be indicated. Conversely, the Cheyenne exclusive *-me* cannot reflect **-mena* (which would give *-ma* as in the inclusive) but instead resembles Arapaho *-be*, which is a possible reflex of **-mena* (though it is puzzling why the secondarily final short vowel would be preserved after loss of final **-nV*). Clearly the possibility of linguistic contact between Cheyenne and Arapaho deserves further investigation. Another unique innovation of Arapaho is found in the you-and-me forms which involve the first person plural. Here, analogy with the affirmative submode (the old conjunct) has operated and a discussion of this development will be reserved until the Arapaho reflexes of the conjunct can be dealt with in full.

5.2. The Cheyenne TA and TI continue the PA objective paradigms, with three prefixes. In the second person, however, the prefix *ne-*, apparently of Siouan origin, replaces **ke-*.⁵³ The obviative ending has been levelled out of the third person forms. The first plural *-ne* may well be a phonetically regular reflex of the inclusive **-naw-*, and the TA plural-object form *-neo* may come regularly from **-nawaki* (compare the AI third plural *-eo* from **-iwaki*). For this to be so, one need only assume a development of **-aw-* to **-ow-*; since PA **i*, **i·*, **o*, and **o·* all fall together to *e*.

In the AI a third person prefix has been introduced, doubtless following the phonetic loss of the third singular ending. The possibility has been mentioned that the AI plural endings may reflect contact with Arapaho. The introduction of the new exclusive ending *-me* raised a problem in the you-and-me forms which was solved by rebuilding the exclusive ending with the old *n*-ending **-na·n-* (> *-no*), giving *-meno*.⁵⁴ The ending *-no* has since been lost elsewhere. In the TI plural the theme-sign **-e·* has been extended to the singular (giving Cheyenne *-a*), perhaps after the loss of final **-wV* and **-nV*, which would have made the original TI singular ending homonymous with the TA singular *-o*. The TI plural has been rebuilt as in Cree, and its plural-object forms are based on the corresponding singulars. The TA passive seems to be a Cheyenne creation.

5.3. Blackfoot has objective forms in the first and second persons of the TA direct and apparently in all three persons of the TA inverse (with some reshaping of the third person ending). If, on the other hand, the ending of the third person inverse is to be explained by its actually being the absolute form (compare Fox, Cree, and Menomini), then it is hard to see where it would have gotten the third person prefix (which is not otherwise found in the Blackfoot verb). The TI has basically absolute forms with rebuilt *p*-endings (as in Abnaki).

All the transitive paradigms show the creation of a set of plural-object endings that is peculiar to Blackfoot. The forms with first and second person subject indicate a plural object by adding *-iau* to the singular object forms (with loss of preceding *-u*). The third person forms add the plural suffixes used for nouns (animate *-iks* < **-aki*; inanimate *-ists(i)* < **-ali*). The origin of these formations is not clear. Perhaps even more striking, however, is the loss in Blackfoot of all the original first plural inclusive forms, which have been replaced by indefinite-subject forms. The inclusive forms in the TA direct and the TI are identical with the TA third person passive and TI passive respectively. The first and second singular of the TI have *-ixp*, generalized from the plural. The you-and-me forms and the TA passive are to some extent Blackfoot creations.

There are several developments in Blackfoot which cannot be explained at present, though more knowledge of the language might change the picture somewhat. However, the various formations peculiar to Blackfoot give the impression of being part of an extensive complex of innovations, rather than archaisms. This is also true of the unexplained details in Cheyenne and Arapaho.⁵⁵ If this impression is borne out by future investigations, further support will have been given to the hypothesis of Michelson and Bloomfield that the proto language reconstructed on the basis of the Central languages alone "will, in the main, fit all the languages and can accordingly be viewed as Proto-Algonquian."⁵⁶ In any case, at the present state of our knowledge this statement certainly stands as the most fruitful hypothesis concerning the genetic relationships of the Algonquian languages.

6.0. **The Formation of the Protoparadigm.** In reconstructing the Proto-Algonquian independent indicative I have set aside the discussion of certain problems for which comparative evidence alone seems to furnish no solution. In general these problems involve cases where the reconstructible form does not correspond to what would be expected on the basis of the overall internal structure of the system. For example, in the first and second persons of the TA inverse it is possible to reconstruct objective endings only; apparently no language furnishes evidence for absolute forms in these categories, even though the absolute/objective correlation is otherwise attested throughout the transitive paradigms.⁵⁷ In a reconstructed language, as with a directly attested language, the only way to approach such problems is by applying the techniques of internal reconstruction. And it should be clear that, since Proto-Algonquian is a point on a historical linguistic continuum, an understanding of the pre-Proto-Algonquian developments in these paradigms may be expected to shed light on later tendencies observable in the individual languages.

6.1. The first of these problems investigated here concerns the origin of the P-endings. It will be seen that this is tied in with certain other problems, including the one mentioned in the preceding paragraph. Consider the following Proto-Algonquian sentences:

<i>*we-wa·pam-a·-w-ali</i>	'He looks at him.'
<i>*wa·pam-e·-wa elenyiw-ali</i>	'He looks at the man.'
<i>*ne-wa·pam-a·-na·n-a</i>	'We look at him.'
<i>*ne-wa·pam-a·-Pena elenyiw-a</i>	'We look at the man.'
<i>*ne-wa·pam-a·-na·n-aki</i>	'We look at them.'
<i>*ne-wa·pam-a·-Pena elenyiw-aki</i>	'We look at the men.'

In these verb-plus-object phrases the object endings (**-a*, **-ali*, **-aki*) may be said to be added to the phrase as a whole. If there is a noun object, it will contain one of these endings and the verb will be in absolute form; if there is no noun object, an ending will be suffixed to the verb, which will thus be objective. It seems clear that the basic structural contrast between the objective and the absolute forms is the opposition between the presence and the absence of the object endings. It is this factor which automatically determines whether the subject endings will be n-endings or P-endings, and the latter choice, in turn, dictates the form of the theme-sign and the use or non-use of the third person prefix.

Whenever there are two morphemes in complementary distribution (as, for example, **(e)na·n-* and **-Pena* are here), there are essentially two possibilities: either (1) they represent the falling together in function of two originally distinct morphemes, or (2) they represent the secondary formal differentiation of what was once the same morpheme. Considering the internal structure of the transitive paradigms, the second possibility seems the most likely in this case. If this is so, then the Proto-Algonquian situation is the result of one of the following developments: either (1) the P-endings were originally used as the subject endings for both the absolute and the objective paradigms and in their latter function were later replaced by the n-endings; or (2) the n-endings were originally used as the subject endings everywhere but were later replaced by the P-endings when in word-final position; in either case it would be necessary to explain how these two sets of endings can be ultimately identical. An attempt to reason out the first

suggested development leads immediately to difficulties; but the second possibility is quite promising. For it is clear that since all Proto-Algonquian words ended in a short vowel, the n-endings could not have survived as such when they were not followed by an object ending, and it is a reasonable inference from this restriction on word-finals that at some previous time final consonants were lost and final vowels shortened.⁵⁸ Now if these word-final changes had operated on the n-endings, they would have produced a set of endings with a striking and hardly coincidental resemblance to the P-endings:

Pre-PA (original)	PA (with apocope)	PA (P-endings)
*-ena·n	*-ena	*-Pena
*-enaw	*-ena	*-Pena
*-wa·w	*-wa	*-Pwa

Considering the above it seems a reasonable hypothesis that the n-endings were originally used everywhere and that after the apocope the n-endings which had been shortened in word-final position (*-ena, and so on) were replaced by the P-endings (*-Pena, from earlier *-Pena·n). If this hypothesis is to be confirmed, the following questions remain to be answered: (1) Is there other evidence for segmenting the *-P- out of the P-endings? (2) Is there other evidence that *-ena, and so on, are identical with the n-endings? (3) If such evidence exists, where did the *-P- come from, and why were the longer endings introduced?

On the first two questions good evidence is provided by the languages that have rebuilt the P-endings into long P-endings. Thus, the Menomini first plural absolute ending -mEnaw is obviously made up of a segment -m- plus the regular objective ending -Enaw, and it would therefore represent a re-creation of the underlying structure of the original P-ending. The -m- has been segmented out and extended to the first and second singular in many forms (see §3.4). Additional evidence that the latter portion of the P-endings was originally identical with the n-endings is furnished by the indications that the two underwent the same morphophonemic alternations before certain modal suffixes. Consider, for example, the following forms from the independent dubitative mode of Fox:⁵⁹

	TA Direct 3(p)	TA Inverse 3
1p	ne—a·pena·toke	ne—ekona·toke
12	ke—a·pena·toke	ke—ekona·toke
2p	ke—a·pwa·toke	ke—ekowa·toke

It now remains only to discover a reasonable source for the *-P-, and the hypothesis stated above will be confirmed to the point of virtual certainty.

The type of suffix replacement which a change *-ena→*-Pena would attest is quite common. On a priori grounds the expected development would be as follows: the ending *-ena(·n) was used in several paradigms, in one of which it was suffixed to a morpheme *-...P-. Subsequently (no doubt after the apocope), the sequence *-...P-ena was recut as *-...-Pena, and the new, longer ending *-Pena was extended to replace *-ena everywhere.⁶⁰ One peculiarity of the P-endings which bears recalling in connection with the search for their origin is that they are found only in the first and second persons. Accordingly, a paradigm

is sought having a *-P- in the first and second persons, to which the endings *-ena and *-wa are suffixed directly. Such a paradigm is found in the Fox and Shawnee TA passive:

	Fox	Shawnee
1	ne—eko·pi	ni—eko·pi
2	ke—eko·pi	ki—eko·pi
3	—a·pi	—o·θo
1p	ne—eko·pena	ni—eko·pe
12	ke—eko·pena	ki—eko·pe
2p	ke—eko·pwa	ki—eko·pwa
3p	—a·pi	—o·θo·ki

It is clear that in these paradigms the element -p(i) is to be analysed out and identified with the suffix -pi which is used in Fox to make AI and psTI passives (e.g., *ipi* 'they say, it is said,' to *iwa* 'he says'; *ayo·pi* 'people use it, it is used,' to *ayo·wa* 'he uses it'), is added to the theme-sign -a- to make TI passives in -a·pi (e.g., *wa·pata·pi* 'it is, they are looked at'),⁶¹ and has been analogically extended to the third person passive of the TA.⁶² It seems, then, that if a first and second person passive formation of this type can be reconstructed for Proto-Algonquian it may be regarded as a likely source for the P-endings.

The closest relative of the Fox and Shawnee passive is found in Ojibwa, where the endings are -iko·, -iko·min, -iko·m.⁶³ The singular form has lost the historically expected -m by way of partial assimilation to the AI paradigm (which has no ending in the first and second singular).⁶⁴ However, the ending -m is retained as an AI passive (e.g., *ikkitom* 'one says, they say') and in the TI and psAI passive -a·m (e.g., *wa·panta·m* 'they see it, one sees it'; *ine·nta·m* 'they think, one thinks').⁶⁵ The alternation between Fox and Shawnee p and Ojibwa m in this ending exactly parallels that in the P-endings; accordingly one may reconstruct for the passive endings AI *-Pi, TI *-a·Pi, TA *-eko·Pi, *-eko·Pena, *-eko·Pwa. Menomini and those Eastern languages which have not completely given up this formation have gone even further in assimilating the TA passive to the AI. These languages have replaced *-eko·- with a suffix which would reflect **-eke·- if it had existed in Proto-Algonquian.⁶⁶ An important factor in this innovation was the fact that, although there were apparently no AI stems in *-o·- in Proto-Algonquian, *-e·- was very common and productive. Also this change had the effect of aligning the passive with certain AI finals of secondary derivation, such as *-iwe·- and *-ke·-, used for action on indefinite animate and inanimate objects respectively.⁶⁷ If, therefore, one assumes that Fox and Shawnee directly reflect the Proto-Algonquian first and second person passive, the formations in Ojibwa, Menomini, and the Eastern languages can be readily explained as tendencies to assimilate to structural patterns already present elsewhere in the languages. But since, on the other hand, the Fox and Shawnee formation cannot be explained as an internal development of those languages, it would seem to be indicated that this was also the Proto-Algonquian formation.

If the P-endings were originally appropriate to the passive, the question is naturally raised as to how they lost their passive meaning.⁶⁸ In this connection it would seem plausible to assume that the passive meaning depended on the presence of both the -P(i) and the appropriate theme-sign. Thus the P-endings could have no passive meaning if they were not preceded by *-ekw-, and they were potentially free to be used as synonymous with the shortened n-endings. Compare the formation of the English phrase *So can't I!* in common use among

children as an emphatic substitute for *So can I*. Since the negative of *So can I* is *Neither can I* the normally negative *can't* is free to be used in this phrase as a synonym for *can*. It should be noted that these assumptions about the origin of the P-endings automatically furnish an explanation of why no first and second person forms can be reconstructed for the TA inverse absolute (at least for the plural). When the P-endings replaced the shortened n-endings, these forms would presumably have become identical with the passive; it was to avoid this homonymy that the objective forms took over for the absolute in just these personal categories.⁶⁹

The theory that the n-endings were the original subject endings and that the -P- of the P-endings was formerly found only in the passive receives still further confirmation in Wiyot and Yurok, two languages of California distantly related to the Algonquian family.⁷⁰ Wiyot has a first person plural pronoun *hinòd* (:*-*ena·n*-), used as an independent word, and it uses *wow* (:*-*wa·w*-) to pluralize the second person pronoun (*khil* 'you' sg.; *khil wow* 'you' pl.). Yurok may also have a cognate of *-*wa·w*- in its second plural pronoun *kelew* and in the second plural ending -*oʔw* appearing in some paradigms. The most likely cognate for Proto-Algonquian *-P- would seem to be the -*p*- in the Yurok endings -*Vp*- 'reflexive' and -*Vpew*- 'reciprocal'.⁷¹

6.2. I have noted briefly that the extension of the P-endings from the passive would have caused difficulties in the absolute forms of the TA inverse. In fact the three paradigms formed by adding the P-endings to the theme-sign *-*ekw*- (the passive, the TA inverse absolute, and the TA inanimate-subject absolute) all present problems which deserve fuller explication. One would expect on a priori structural grounds that the passive would be formed by *-*ekw*- plus *-P- plus the subject endings, that the TA inverse absolute would be the same as the TA direct absolute with the substitution of *-*ekw*- for *-*a·*-, and that the TA inanimate-subject absolute would be equivalent to the TI absolute with *-*ekw*- substituted for the theme-sign *-*am*-/*-*a·*-. This would give the following forms:⁷²

	TA Inverse	Inanimate- Subject	Passive
1	* <i>ne—e</i>	* <i>ne—e</i>	* <i>ne—ekwiPi</i>
3	* <i>—ekwa</i>	* <i>—ekwa</i>	* <i>(—a·wa)</i>
1p	* <i>ne—ekwiPena</i>	* <i>ne—ekwiPena</i>	* <i>ne—ekwiPena</i>

However, the forms reconstructible for Proto-Algonquian are these (the inverse forms in parentheses were taken over from the objective):

1	(* <i>ne—ekwa</i>)	* <i>ne—ekwi</i>	* <i>ne—eko·Pi</i>
3	* <i>—ekwa</i>	* <i>—ekwiwa</i>	(* <i>—a·wa</i>)
1p	(* <i>ne—ekwena·na</i>)	* <i>ne—ekwiPena</i>	* <i>ne—eko·Pena</i>

The weakest point in the expected system would clearly have been the ending *-*e*, which with the loss of final consonants would have lost its identity as the theme-sign *-*ekw*-. Its replacement by the objective ending *-*ekwa* in the TA inverse would have been straightforward, almost automatic. However, whereas the *-*a* in the third person absolute form refers to the grammatical subject (the logical object in the inverse), the *-*a* in the first (and second) person objective form *-*ekwa* refers to the grammatical object (the logical subject). The inanimate-

subject ending **-e* would thus have quite naturally been replaced by **-ekwi* (compare the inanimate ending **-i*); the inanimate-subject third person forms may be explained as the result of this paradigm being assimilated to the AI. After the latter change the inverse forms would have had **-ekw-a* throughout the singular and in the third plural and **-ekw-i-* in the first and second plural, whereas the inanimate-subject paradigm would have had **-ekw-i-* throughout. Considering the fact that elsewhere in the Proto Algonquian system the contrast **-a/*-i* indicates the opposition animate/inanimate, a replacement of **-ekw-i-* by **-ekw-a-* in the first and second plural of the TA inverse is not altogether surprising.⁷³ If this is assumed to have happened, the passive forms are easily explained. For when the plural endings became differentiated by the shift of **-ekwiPena*, and so on, to **-ekwaPena*, and so on, in the inverse, the passive had either to retain **-ekwiPena*, and so on, (thus aligning itself with the inanimate-subject forms) or to shift to **-ekwaPena* (in alignment with the TA inverse). Since, if the above conjectures are correct, the contrast was basically a matter of gender, the question was whether the animate or inanimate ending was more appropriate to the passive. And as the animate is the unmarked member of the opposition in Algonquian,⁷⁴ it was the one chosen. Thus arose the passive endings **-ekwaPena*, **-ekwaPwa*, and by analogy **-ekwaPi*; the contraction of **-wa-* to **-o-* in the attested forms is unexceptional.⁷⁵ The replacement of the absolute inverse forms by their objective counterparts would have been natural considering that the former would not have been distinct from the passive and that there was no absolute/objective contrast in the first and second singular.

6.3. Throughout the discussion of the P-endings the correspondence of the *p* of some languages to the *m* of others has been denoted by *P*. A certain amount can be said about what might lie behind this correspondence. In the first place all the languages which attest *p* have lost the nasal in nasal-plus-stop combinations without a trace; it is therefore possible to conjecture that in Proto Algonquian terms the alternation was between **m* and **mp*, which may be denoted **m(p)*. There is in fact other evidence for such an alternation that confirms **mp* rather than **p*. In the word for 'house' the reconstruction **wi·kiwa·mi* will account for the developments in Ojibwa (*wi·kiwa·m*), Menomini (*we·kewam*), Miami (*wikiami*), and the Eastern languages (Abnaki *wigwôm*; Natick *wekuwom-*, *wetuôm-*; Delaware *wikwam*); but **wi·kiwa·mpi* is required by Fox *wi·kiya·pi*, Shawnee *wi·kiwa·p-*, and Cree *mi·kiwa·hp*.⁷⁶ Similarly **akom(p)i* is reflected in Cree *akohp* 'blanket, robe' beside Menomini *ako·m* 'broadcloth,' *neta·kom* 'my robe, blanket,' Arapaho *hóú* 'blanket,' *hóúwo* 'blankets,' Cheyenne *hóoma* 'blanket'; **wenikam(p)i* 'portage' is reflected in Cree *onikahp* beside Ojibwa *onikam*. Now **akom(p)i* is certainly a derivative of **akwiwa* 'he dons something' (Menomini *ako·w* 'he dons a garment'), and **wenikam(p)i* is similarly based on **wenike·wa* (Ojibwa *onike·* 'he carries something over a portage,' Abnaki *n8nighé* 'je fais portage')—compare the regular formation with abstract noun final **(e)n-* in Abnaki *8nigan* 'portage.' In fact just as the noun final **(e)n-* seems to be the same element as the *-n* which forms indefinite-subject verb forms in Menomini and some Eastern languages (Menomini *po·sen* 'there is embarking'; Abnaki *nemanésé* 'j'amasse coquillage pour manger,' *manésaiin* 'on en ramasse'), so also the noun final **-m(p)-* is doubtless ultimately the same as the passive element **-m(p)-*. A simple development of **mp* to **m* cannot be assumed in the languages that have m-endings on the one hand since Abnaki, for example, has

wigwóm with *-m* but *p*-endings, and on the other hand since there are regular **mp* clusters that show no such alternation; for example, **a·mpat-* in Menomini *a·hpatah*, *a·hpatahonan* 'cane, canes'; Shawnee *nita·patho* 'I walk with a cane'; Abnaki *ôbadahon*, *ôbadahonal* 'cane, walking-stick, crutch' pl.

NOTES

- ¹ I wish to thank Karl Teeter and Calvert Watkins for their helpful criticisms of an earlier version of this paper.

The basic work on Algonquian grammar is Bloomfield, 1946, to which reference will be made only when specific points are involved. The grammatical terminology is taken from Bloomfield, 1946, 1957, and 1962, except for a few special terms directly connected with the present hypothesis. At the end of my paper there is an appendix containing the paradigms of the independent indicative in Proto-Algonquian and in the sixteen languages treated; these may be referred to for examples. A second appendix gives, for each language, information on sources and details of the transcription and historical phonology that might not be immediately obvious.

Notice should be taken of the following symbols and conventions: 1, 2, 3=first person, second person, third person; 3'=obviative; O=inanimate; d=dual; pl.=plural; 1p=first plural exclusive; 12=first plural (or dual) inclusive; inan.-subj.=TA inanimate-subject paradigm; 1—2='I—you' (singular); 2p—1='you (plural)—me'; 3(p)=third person singular or plural; ps=passive. In giving paradigms the grammatical subject involved in a form is indicated by a number on the left, the grammatical object by a number above the column of endings.

- ² The cases where this is not true for certain morphological details do not affect the basic validity of this generalization.

- ³ Bloomfield calls the indefinite-subject forms passives, a term which Hockett has justifiably objected to (Foreword to Bloomfield, 1957, p. vi). Nevertheless calling them passives rather than indefinite-subject forms is often much less awkward, and occasionally they will be termed passives in this paper.

- ⁴ Geary, 1943, discusses at length the alternation between **-eðe* and **-eðene* and concludes that the longer form was original. There is evidence from Menomini and some Ojibwa dialects pointing to the use of **-eðene-* before pronominal endings, but Geary's arguments for setting up **-eðene* as the form for 'I—you' (singular) are not conclusive; in Cree *-itin* the *-n* is an innovation, found also in the AI (see §3.4, below).

- ⁵ See Bloomfield, 1946, §§27, 79; 1957, §5.9. In Bloomfield, 1962, §7.34, these are treated as a subset of the TI finals, Class 2.

- ⁶ Bloomfield also refers to these as TI verbs with formal object. See Bloomfield 1946, §§27, 41; 1957, §5.12; 1962, §2.57.

- ⁷ The initial **e* drops when a vowel precedes.

- ⁸ Blackfoot has a reflex of **-ena·n-* in the exclusive; for the inclusive see §5.2, below.

- ⁹ Cree has lost this set of endings, but it has retained the opposition between them and the *n*-endings by replacing them with a rebuilt paradigm derived from the TI. See §3.4, below.

- ¹⁰ See Bloomfield, 1946, §§24, 25.

- ¹¹ Cheyenne has short *m*-endings except for *-meno*, a Cheyenne innovation showing the same structure as the long endings; see footnote 54. The only *P*-endings surviving in Micmac could be either long or short *p*-endings.

- ¹² Bloomfield, 1946, §42.

- ¹³ For the moment I am concerned only with the internal structure of these paradigms; nevertheless, to avoid confusion certain phonological details are reconstructed here, even though the evidence comes from other languages. In Ojibwa, Potawatomi, and Shawnee the TA forms for plural and obviative object have been rebuilt by adding the productive endings onto the regularly shortened singular. (For attestation of the full forms, see the paradigms of Cree, Menomini, Fox, Arapaho, Natick, and Delaware.) Potawatomi and the southern dialects of Ojibwa regularly lose the distinction of number in the obviative. The forms reconstructed here for first and second person on obviative underlie the forms found in Cheyenne, Cree, and Northern Ojibwa with the reflex of **-em-* immediately before the theme-sign. This **-em-* is assumed to have been extended from the conjunct (to which it is confined in Fox), and it may not have been of Proto-Algonquian date in the independent order as Bloomfield thought (Bloomfield, 1946, §37, end).

- ¹⁴ What is given here as **-n-* is actually morphophonemically **-en-*, as is shown by the inanimate-subject forms (see §3.4, below). Although **-w-* and **(e)n-* appear to pattern as singular subject endings, their exact morphological value seems rather vague. For **(e)n-* see §3.4, especially footnote 28, below.
- ¹⁵ For an example of this notion of Central Algonquian, see Hockett, 1957, p. 248; 1964, p. 240. As to the questions of whether the Central languages constitute a genetic subgroup within the Algonquian family, see my papers "Notes on the Genetic Classification of the Algonquian Languages" elsewhere in this volume and "The Eastern Algonquian Intrusive Nasal." The facts uncovered in the present paper imply that the Central languages do not form such a subgroup; see §§4.0, 5.0, 5.3 end, below.
- ¹⁶ Baraga, 1878, p. 257; similarly the inanimate-subject forms, p. 263.
- ¹⁷ Dumouchel and Brachet, 1942, p. 58, 70.
- ¹⁸ Ottawa and Algonkin agree with Eastern Ojibwa in not sharing these innovations of the other Ojibwa dialects; see Michelson, 1907, p. 265. The extreme northern dialects betray Cree influence; see Rogers, 1963.
- ¹⁹ For Algonkin see Michelson, 1907, p. 264-5; Hanzeli, 1961, p. 216. For Lake Superior Ojibwa see Jones, 1917 and 1919.
- ²⁰ The inclusive ending **(e)naw-* is reconstructed on the basis of evidence furnished by other languages; see §2.1, above.
- ²¹ A complete paradigm of this description is perhaps to be found among the paradigms given in the manuscript Illinois dictionary which has been attributed to Father Jean-Baptiste Le Boulanger, a French missionary of the early eighteenth century. It is not possible to be certain on this point since he seems not to specify that any of his forms are used with plural object. If Illinois does have such a paradigm, it is a welcome confirmation; but even if it does not, the former existence of such a set of endings may be inferred from the internal reconstruction within Fox.
- ²² Such a psAI is also found in Potawatomi and Shawnee.
- ²³ The use of the inanimate plural ending *-in* and the animate plural *-ik* after the first plural suffix *-na·n-* is an unexplained innovation of Ojibwa.
- ²⁴ This is in accordance with Kuryłowicz's Third Law of Analogy: "Une structure consistant en membre constitutif plus membre subordonné forme le fondement du membre constitutif isolé, mais isofonctionnel" (Kuryłowicz, 1949, p. 25). In terms of the present case this means that a form with zero suffix will tend to be reshaped on an analogy with an isofunctional form having a concrete suffix. In fact this change is not even of Common Ojibwa date, since the earlier stage (with zero ending in the first and second singular) is attested in seventeenth-century grammars of Old Algonkin. One of these gives the following paradigm: "nitep8et je croi, kitep8et tu, tep8etam, tamin, tamin, tam, tam8k" (in Hanzeli, 1961, p. 214).
- ²⁵ Bloomfield, 1957, §7.27.
- ²⁶ The Illinois TI seems to correspond to that of Fox.
- ²⁷ Bloomfield, 1962, §5.10.
- ²⁸ Both the TI ending and the noun final are actually from **-en-*, and may indeed be the same original morpheme; see Bloomfield, 1962, §5.25.
- ²⁹ Bloomfield, 1946, §62; 1962, §14.45; the example is from Bloomfield, 1962, §3.45.
- ³⁰ Bloomfield, 1946, §41.
- ³¹ The replacement of the inclusive ending *-mEnaw* by the unexplained *-?* is reflected in a morphophonemic rule which must be set up for purely descriptive considerations; see Bloomfield, 1962, §5.60.
- ³² Bloomfield, 1962, §§5.27, 8.1.
- ³³ The TA and TI finals are, of course, distinctive; but there is a general tendency in the Algonquian languages to emphasize the animate/inanimate contrast and to maintain different sets of endings as well.
- ³⁴ Bloomfield, 1946, §42. It is not certain that these two modes are cognate, as Bloomfield takes them.
- ³⁵ In effect the new set of endings, having taken over the structural position of the P-endings, could accordingly not mark the object even in their original function; see footnote 9, above.
- ³⁶ Lacombe, 1874, gives all the inclusive and second-plural forms with two variants, with and without the *-na·-*. The Cree dialect used as a basis for the present discussion is the Plains Cree of Edwards, 1954, which apparently preserves an older distinction.
- ³⁷ Laurent, 1884, p. 71, 93, 100, 112, 114, 115, 195.
- ³⁸ Cf., footnote 13, above.
- ³⁹ From Trumbull, 1903. As is evident from his remarks in "The Algonkin Verb" (*Trans. Am. Philol. Assoc.* for 1876, p. 146-171, especially p. 154) and in a letter to Pilling (*In Pilling*, 1891, p. 500), Trumbull was well aware of the distinction between the transitive objective (called by him the "absolute") and the transitive absolute (called by him the "primary or simple forms").

- ⁴⁰ Some AI forms with an *-m* used in this way were collected by Siebert from a Munsee who had a certain amount of knowledge of some other Delaware dialects. (I am indebted to Siebert for allowing me to examine his unpublished Munsee materials.) This feature also seems to be present in Powhatan.
- ^{40a} Voegelin, 1946, p. 144, §3.10.
- ⁴¹ See §4.5, end of last paragraph, below.
- ⁴² There is some irregularity in the details of the loss of final vowels in the Eastern languages, but apparently all agree in the loss of final **-a* together with a preceding **w* that is not itself preceded by **k*.
- ⁴³ The juncture vowel may have been **e* or **i*.
- ⁴⁴ Kurylowicz, 1949, p. 23: "Les actions dites analogiques suivent la direction: formes de fondation → formes fondées, dont le rapport découle de leurs sphères d'emploi."
- ⁴⁵ The restoration of the full form **-en* was possible because the **e* was still preserved in the TA inanimate-subject objective singular. Note also the TI conjunct passive ending *-amenki*.
- ⁴⁶ Watkins, 1962, p. 90ff.
- ⁴⁷ The Delaware first plural ending *-e-n* and the Abnaki second and third plural *-ô* seem to be morphological reshapings of vague significance.
- ⁴⁸ For example, *nepotatamen* 'to blow anything' (i.e., 'I blow on it'); cf., Proto-Algonquian **po-ta-tamwa* 'he blows on (it)'. See Strachey's Powhatan vocabulary in Strachey, 1953, p. 177.
- ⁴⁹ Voegelin, 1946, p. 149, §5.9.
- ⁵⁰ Laurent, 1884, p. 130, 138, 144.
- ⁵¹ In a personal letter.
- ⁵² See Salzmann, 1963, p. 31-32.
- ⁵³ Michelson regarded *ne-* (which he wrote *ni-*) as "an analogical transformation unless of alien origin" (1935, p. 153).
- ⁵⁴ This is the same process of rebuilding that Menomini and the Eastern languages exhibit in the long P-endings, but note that *-meno* does not correspond phonetically to **-mena-n*, which would give **-mano*.
- ⁵⁵ Actually the historical problems encountered in Arapaho and Cheyenne do not seem to be appreciably more extensive than those found in some of the Central and Eastern languages. At the present state of knowledge Blackfoot definitely has the most divergent aspect of all.
- ⁵⁶ Bloomfield, 1946, p. 85; implicit throughout Michelson, 1935.
- ⁵⁷ For example, in Natick, judging from the use of the direct forms, one would expect that absolute inverse forms (if they existed) would be used when the grammatical object (the logical subject) was expressed by a noun. I have found three such situations in Eliot's Bible, all with objective forms of the verb. For example, Ex. 13:16; *Jehovah kussolh8wumukqun wutch Egypt* 'the Lord brought us forth out of Egypt'; similarly Ex. 13:3, 14.
- ⁵⁸ For the loss of final consonants compare the preverbs *ki-* 'completed action' (Fox, Cree, Ojibwa; see Hockett, 1957, no. 88) and *te-* 'reaching, enough' (Ojibwa) with the roots **ki-š-* 'finish' and **te-p-* 'enough.' Also compare **ne?tami* 'first' (Cree *nistam*, Ojibwa *nittam*) and **mene?ta* id (Fox *menehta*, Menomini *mene?*). For the vowels, see footnote 10; apparently long final vowels were retained in monosyllabic preverbs.
- ⁵⁹ From Michelson, 1927. The Ojibwa dubitative is similar. In these subordinate modes the segment reflecting **-P-* (Fox *p*, Ojibwa *m*) has been extended to the first and second persons singular.
- ⁶⁰ See Kurylowicz's First Law of Analogy: "Un morphème bipartite tend à s'assimiler à un morphème isofonctionnel consistant uniquement en un des deux éléments, c.-à-d. le morphème composé remplace le morphème simple" (1949, p. 20). In this case the bipartite morphemes **-P-ena* and **-P-wa* replaced the simple morphemes **-ena* and **-wa*.
- ⁶¹ See Jones, 1911, p. 847-8; Michelson, 1925, p. 347, 613.
- ⁶² The Proto-Algonquian third person passive endings were **-a-wa* and **-a-waki* for singular and plural respectively; see Bloomfield, 1946, §37 (no. 126), and also Natick, Penobscot, Malecite, and Blackfoot. Apparently Shawnee preserves a reflex of this older formation in the noun *po-ta-la* (*po-ta-la-ki*, pl.) 'float(s) of deerskin blown up' (from the TA stem in *nipo-ta-la* 'I blow on him,' Voegelin, 1938, p. 73; for the derivational process see Bloomfield, 1962, §14.99. Voegelin's *pootaulaa* is an obvious misprint, since long vowels are not tolerated in final position in Shawnee); perhaps also in the prenoun in *po-teθwa-wi-l?θe-ma* 'smoking tobacco' (Voegelin, 1938, p. 74; for the prenoun see Bloomfield, 1962, §§13.54-56). The regular Shawnee third person passive uses the ending *-o-θo* (which is also used for the conjunct passive), derived from the middle reflexive AI final *-eško-θo*. In the oldest layer of formations *-eško-θo* is used beside TA stems in *-eškaw* (all forms in the following discussion are from Voegelin, 1938): *ha-meško-θo* 'he is driven' (p. 414; TA *ha-meškaw-*, p. 440); *ha-peško-θo* 'he is revived' (with TA *ha-peškaw-* on p. 426). Then *-o-θo* was segmented off and extended to

use after other TA stems, becoming the productive formation: *tepho·0o* 'he got paid' (p. 140); *katawi-mešeno·0o* 'he can be caught' (p. 290). Similarly an II passive ending *-o·te* was derived from the middle reflexive II final *-eško·te* (p. 412, 430, 442; for Ojibwa and Menomini cognates of these finals see Bloomfield, 1957, §12.140; 1962, §15.69).

⁶³ Similarly in Illinois, it seems.

⁶⁴ This loss of *-m* would have followed naturally upon the loss of final vowels in order to avoid homonymy of the second person singular and plural. Only by assuming such an analogical change can the singular ending *-iko·* be accounted for, since this was the form already in Old Algonkin (*-ig8*, Hanzeli, 1961, p. 206), which had not yet analogically extended final long vowels of AI stems to the first and second singular: Old Algonkin *nimakissinikk* (*nimakissinik*, Hanzeli, 1961, p. 134), Ojibwa *nimakissinikke·* (*makissiniké, nin*, Baraga, 1880, p. 208) 'I make shoes.' Cf., footnote 24, above.

⁶⁵ Forms from Baraga, 1878, p. 98, 135, 257.

⁶⁶ Bloomfield (1946, §§38, 48) set up the inverse theme-sign as **-eke*, apparently because of the Menomini passive formation (nowhere does he give his reasoning). But there are no obstacles to setting up **-ekw*, if all such passive formations have the secondary origin postulated here.

⁶⁷ Bloomfield, 1946, §§70, 71.

⁶⁸ The assumption that the P-endings originally had a passive significance, which was lost when they were pressed into service as the regular absolute plural endings, would account very naturally for the fact that most of the Algonquian languages have either altered or abandoned the original passive formation.

⁶⁹ For a detailed discussion of a possible sequence of developments underlying this situation, see §6.2, below.

⁷⁰ Because Wiyot and Yurok are related to the Algonquian languages on a much deeper time level than that on which the members of the latter group are related among themselves, they should not be referred to as 'Algonquian' languages any more than English should be called 'Slavic' by virtue of its affinity with Russian. The precedent for calling them so was unfortunately set in the article that originally proposed the relationship, Sapir's "Wiyot and Yurok, Algonkin Languages of California" (1913). Perhaps Schoolcraft's term 'Algie' could be revived to refer to the entire group.

⁷¹ I owe the Wiyot forms to Karl Teeter; the Yurok is from Robins, 1958, p. 33, 59, 78-9, 205. See also Haas, 1958a, p. 168.

⁷² For the connective **-i-* in **-ekwiPena*, see Bloomfield, 1946, §16.

⁷³ The underlying assumption here is that elements may adopt contrastive distributions that are proper to other elements which they accidentally resemble. A well-known case of this is the use of Old Persian *nāma-nāmā* 'by name,' the two variants of which are distributed as though they were respectively the nominative singular masculine and nominative singular feminine of an adjective: *Dādaršiš nāma Arminiya* 'an Armenian (masculine) named D.'; *Sikayauvatiš nāmā didā* 'a fortress (feminine) named S.'; but note: *Zāzāna nāma vardanam* 'a town (neuter) named Z' (see Kent, 1953, §312). I am further assuming the creation of a connective **-a-* besides the connective **-i-* by means of a similar sort of analogical distribution coming into being (as if Old Persian had created a pseudo-neuter **nāmam*).

⁷⁴ The class of animate nouns includes a good number that refer to non-animate things, whereas no person or creature is denoted by an inanimate noun. Since the knowledge that a noun is animate conveys less information about the referent, the animate gender is the more neutral of the two.

⁷⁵ Cf., §1.9, end, above. Bloomfield (1927, §102) derives Fox *-eko·pi* from *-ekwa·pi*, and so on.

⁷⁶ In the Cree form *m-* is the indefinite possessor prefix (see Bloomfield, 1941, p. 295). For sources and further references on this word, see my paper on "The Eastern Algonquian Intrusive Nasal," no. 67.

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APPENDIX 1

PARADIGMS

- | | |
|---------------------|----------------|
| 1. Proto-Algonquian | 10. Malecite |
| 2. Abnaki | 11. Menomini |
| 3. Arapaho | 12. Micmac |
| 4. Blackfoot | 13. Natick |
| 5. Cheyenne | 14. Ojibwa |
| 6. Cree | 15. Penobscot |
| 7. Delaware | 16. Potawatomi |
| 8. Fox | 17. Shawnee |
| 9. Illinois | |

(The same order of languages is used in Appendix 2, Notes on the Paradigms.)

1. PROTO-ALGONQUIAN

		<i>Direct</i>		<i>Inverse</i>		<i>Inanimate-Subject</i>	
		3	3p	3	3p	O	Op
<i>TA Objective</i>	1	ne—a·wa	-aki	ne—ekwa	-eko·ki	ne—ekweni	-ali
	2	ke—a·wa	-aki	ke—ekwa	-eko·ki	ke—ekweni	-ali
	3	we—a·wali	-ahi	we—eko·li	-eko·hi	we—ekweni	-ali
	1p	ne—a·na·na	-aki	ne—ekwena·na	-aki	ne—ekwena·ni	-ali
	12	ke—a·nawa	-aki	ke—ekwenawa	-aki	ke—ekwenawi	-ali
	2p	ke—a·wa·wa	-aki	ke—ekowa·wa	-aki	ke—ekowa·wi	-ali
	3p	we—a·wa·wali	-ahi	we—ekowa·wali	-ahi	we—ekowa·wi	-ali
		<i>Direct</i>		<i>Inverse</i>	<i>Passive</i>	<i>Inanimate-Subject</i>	
		1	2				
<i>TA Absolute</i>	3	ne—a	ke—a	—ekwa	ne—eko·Pi	ne—ekwi	
	1p	ne—a·Pena	ke—a·Pena		ke—eko·Pi	ke—ekwi	
	12	ke—a·Pena	ke—a·Pena		—a·wa	—ekwiwa	
	2p	ke—a·Pwa	ke—a·Pwa	—eko·ki	ne—eko·Pena	ne—ekwiPena	
	3p	—e·waki	—e·waki		ke—eko·Pena	ke—ekwiPena	
					ke—eko·Pwa	ke—ekwiPwa	
		<i>TI Objective</i>		<i>TI Absolute</i>	<i>AI</i>	<i>TA You-and-Me</i>	
		1	2			2-1	
	3	ne—a·ni	ke—a·ni	ne—a	ke—	ke—i	
	1p	we—a·ni	ke—a·ni	—amwa	ke—	ke—iPwa	
	12	ne—e·na·ni	ke—e·nawi	ne—a·Pena	—wa	ke—iPena	
	2p	ke—e·wa·wi	ke—e·wa·wi	ke—a·Pena	ne—Pena		
	3p	we—e·wa·wi	ke—e·wa·wi	ke—a·Pwa	ke—Pena	1-2	ke—eθe
				—amo·ki	ke—Pwa	1-2p	ke—eθePwa
					—waki	1p-2(p)	ke—eθePena

2.

ABNAKI

<i>TA Finite</i>			<i>TA Inverse</i>			<i>TI Finite</i>		
1	n'—ô	-ôk (P)	n'—egw	-egok		n'—emen	-al	
2	k'—ô	-ôk (P)	k'—egw	-egok		k'—emen	-	
3	w'—ô	-ô	—	-		w'—emen	-al	
1p	n'—ôнна	-ônnawak	n'—egonna	-egonnawak		n'—emenana	-	
12	k'—ôнна	-ônnawak	k'—egonna	-egonnawak		k'—emenana	-	
2p	k'—ôwô	-ôwôk (P)	k'—egwô	-egwôk		k'—emenô	-	
3p	w'—ôwô	-ôwô	—	-		w'—emenô	-	

<i>TA Indefinite</i>			<i>TI Indefinite</i>			<i>AI (Stem in -i)</i>		
1	n'—ô		n'—em			n'—i		
2	k'—ô		k'—em			k'—i		
3	—a		—em			—o		
1p	n'—ôbena		n'—emebena			n'—ibena		
12	k'—ôbena		k'—emebena			k'—ibena		
2p	k'—ôba		k'—emeba			k'—iba		
3p	—ak		—emok			—oak		

You-and-Me Forms

2-1	k'—i	1-2	k'—el
2p-1	k'—iba	1-2p	k'—elba
2(p)-1p	k'—ibena	1p-2(p)	k'—elbena

3.

ARAPAHO*

<i>TA Direct</i>			<i>TA Inverse</i>			<i>TI</i>		
1	ne—oo	-oonó?	ne—e?	-ei		ne—o		
2	he—oo	-oonó?	he—e?	-ei		he—o		
3	—ee	-ee	—e?	-		—o		
1p	ne—óóbe	-óóbe	ne—éibé	-éibé		ne—owube (K)		
12	he—oon	-oon	he—éin	-éin		—		
2p	he—óóbe	-óóbe	he—éibé	-éibé		he—owube (K)		
3p	—cenó?	-cenó?	—	-		—owuu (K)		

<i>AI</i>		<i>Reflexive</i>	<i>TA You-and-Me Forms</i>			
1	ne—o	ne—et	2-1	he—o	1-2	he—eθ
2	he—o	he—et	2p-1	he—ibe	1-2p	he—eθébe
3	—o	—et	2-1p	he—éi?ee	1p-2	he—ée
1p	ne—be	ne—etibe	2p-1p	he—éi?éébe	1p-2p	he—eebe
12	he—noo	he—etin				
2p	he—be	he—etibe				
3p	—no?	—etino?				

*The nonaffirmative submode.

4.

BLACKFOOT

<i>TA Direct</i>			<i>TA Inverse</i>		<i>AI (Stem in i)</i>
1	ni—au(a)	-aiau	ni—ok	-okiau	ni—i
2	ki—au(a)	-aiau	ki—ok	-okiau	ki—i
3	—iu	-iuaiks	o—ok	-okaiks	—iu(a)
1p	ni—anan(a)	-ananiau	ni—okinan	-okinaniau	ni—ixpinan(a)
12	—au(a)	-aiau	—oku	-okiau	—iop
2p	ki—auau(a)	-auaiau	ki—okoau	-okoaiiau	ki—ixpuau(a)
3p	—iau	-iauaiks	o—okoaiiau	-okoaiiau	—iau

<i>TI</i>			<i>TA Passive</i>	<i>You-and-Me Forms</i>	
1	ni—ixp	-ixpiaiu	ni—oko	2-1	ki—aki
2	ki—ixp	-ixpiaiu	ki—oko	2p-1	ki—akixpuau
3	—im	-imaists(i)	—au(a)	2(p)-1p	ki—akixpinan
1p	ni—ixpinan(a)	-ixpinaniau	ni—otspinan	1-2	ki—o
12	—ixp	-ixpiaiu	—otsp	1-2p	ki—oapau
2p	ki—ixpuau(a)	-ixpuaiiau	ki—okoau	1p-2(p)	ki—oapinan
3p	—imiaiu	-imiauaists(i)	—aiiau		

5.

CHEYENNE

<i>TA Direct</i>			<i>TA Inverse</i>		<i>AI</i>
1	na—o	-ō	na—a	-ā	na—o
2	ni—o	-ō	ni—a	-ā	ni—o
3	e—o	-ō	e—a	-ā	e—o
1p	na—on	-oneo	na—acn	-	na—mē
12	ni—on	-oneo	ni—acn	-	ni—mā
2p	ni—ovō	-ovō	ni—aevo	-aevo	ni—mē
3p	e—ovō	-ovō	—	-	e—(e)o

<i>TI</i>			<i>Passive</i>	<i>You-and-Me Forms</i>	
1	na—a	-anots	na—an	2-1	ni—e
2	ni—a	-anots	ni—an	2p-1	ni—eme
3	e—a	-anots	e—e	2(p)-1p	ni—emenō
1p	na—anon	-anonsts	na—anheme	1-2	ni—ats
12	ni—anon	-anonsts	ni—anhema	1-2p	ni—atseme
2p	ni—anov	-anovots	ni—anheme	1p-2(p)	ni—atsemenō
3p	e—anov	-anovots	e—eo		

6.

CREE

	<i>TA Direct</i>		<i>TA Inverse</i>		<i>TI</i>	<i>AI</i>
1	ni—a·w	-ak	ni—ik	-ikwak	ni—e·n	ni—n
2	ki—a·w	-ak	ki—ik	-ikwak	ki—e·n	ki—n
3	—e·w		—ik		—am	—w
1p	ni—a·na·n	-ak	ni—ikona·n	-ak	ni—e·na·n	ni—na·n
12	ki—a·naw	-ak	ki—ikonaw	-ak	ki—e·na·naw	ki—na·naw
2p	ki—a·wa·w	-ak	ki—ikowa·w	-ak	ki—e·na·wa·w	ki—na·wa·w
3p	—e·wak		—ikwak		—amwak	—wak

	<i>TA Passive</i>		<i>Inan.-Subj.</i>	<i>You-and-Me Forms</i>	
1	ni—ikawin		ni—ikon	2-1	ki—in
2	ki—ikawin		ki—ikon	2p-1	ki—ina·wa·w
3	—a·w		—ikow	2(p)-1p	ki—ina·n
1p	ni—ikawina·n		ni—ikona·n	1-2	ki—itin
12	ki—ikawina·naw		ki—ikona·naw	1-2p	ki—itina·wa·w
2p	ki—ikawina·wa·w		ki—ikona·wa·w	1p-2(p)	ki—itina·n
3p	—a·wak		—ikowa·w		

7.

DELAWARE

	<i>TA Direct</i>		<i>(Zeisberger)</i>	<i>You-and-Me Forms</i>	
1	nə—a	-á·ok	n'—awak	2-1	kə—i
2	(kə—a	-á·ok)	k'—awak	2p-1	kə—ihimo
3	wə—á·o	-á·o	w'—awal	2(p)-1p	kə—ihina
1p	(nə—á·wəna	-a·wəná·nak)	n'—awunanak	1-2	kə—əl
12	kə—á·wəna	-a·wəná·nak	(k'—awunanak)	1-2p	kə—əlúhumo
2p	kə—áwo	-awó·ok	k'—awawak	1p-2(p)	kə—əlúhuna
3p	wə—awó·o	-awó·o	w'—awawall		

	<i>TA Inverse</i>		<i>TI Objective</i>	<i>TI Absolute</i>	<i>AI</i>
1	nə—əkw	-əku·k	nə—əmən -a	nə—am	nə—
2	(kə—əkw	-əku·k)	kə—əmən -a	(kə—am)	kə—
3	wə—əku	-əku	wə—əmən -a	—am	—w
1p	(nə—əku·na	-əku·ná·nak)	nə—aməne·n	nə—amúhuna	(nə—məna)
12	kə—əku·na	-əku·ná·nak	(kə—aməne·n)	(kə—amúhuna)	kə—məna
2p	kə—əkuwa	(-əkəwó·ok)	kə—əməné·yo	(kə—amúhumo)	kə—mo
3p	wə—əkəwó·o	-əkəwó·o	wə—əməné·yo	—amu·k	—wak

8.

FOX

<i>TA Direct</i>		<i>TA Inverse</i>		<i>You-and-Me Forms</i>	
1	ne—a·wa -ki	ne—ekwa -eko·ki		2-1	ke—i
2	ke—a·wa -ki	ke—ekwa -eko·ki		2p-1	ke—ipwa
3	—e·wa	—ekwa		2(p)-1p	ke—ipena
1p	ne—a·pena	ne—ekona·na -ki		1-2	ke—ene
12	ke—a·pena	ke—ekona·na (-ki)		1-2p	ke—enepwa
2p	ke—a·pwa	ke—ekowa·wa (-ki)		1p-2(p)	ke—enepena
3p	—e·waki	—eko·ki			

<i>TI</i>		<i>AI</i>	<i>Passive</i>	<i>Inan.-Subj.</i>
1	ne—a	ne—	ne—eko·pi	ne—ekwi
2	ke—a	ke—	ke—eko·pi	(ke—ekwi)
3	—amwa	—wa	—a·pi	—ekwiwa
1p	ne—a·pena	ne—pena	ne—eko·pena	ne—ekwipena
12	ke—a·pena	ke—pena	ke—eko·pena	(ke—ekwipena)
2p	ke—a·pwa	ke—pwa	ke—eko·pwa	(ke—ekwipwa)
3p	—amo·ki	—waki	—a·pi	(—ekwiwaki)

9.

ILLINOIS

<i>TA Direct</i>		<i>TA Inverse</i>		<i>TA Passive</i>	
1	ni—a	ni—eg8a -eg8ki		ni—eg8	
2	ki—a	ki—eg8a -eg8ki		ki—eg8	
3	—e8a	—eg8a		—a8a	
1p	ni—amina	ni—eg8nan -aki		ni—eg8mina	
12	ki—amina	ki—eg8nan -aki		ki—eg8mina	
2p	ki—am8a	ki—eg8m8a		—	
3p	—e8aki	—eg8ki		—a8aki	

<i>TI</i>		<i>AI</i>	<i>You-and-Me Forms</i>	
1	ni—a	ni—	2-1	ki—i
2	ki—a	ki—	2p-1	ki—im8a
3	—am8a	—8a	2(p)-1p	ki—imina
1p	ni—amina	ni—mina	1-2	ki—ere
12	ki—amina	ki—mina	1-2p	ki—erem8a
2p	ki—am8a	ki—m8a	1p-2(p)	ki—eremina
3p	—am8ki	—8aki		

10.

MALECITE

<i>TA Direct</i>			<i>TA Inverse</i>		<i>Inan.-Subj.</i>		<i>Passive</i>
1	nə—a	-ak	nə—əkw	-əkok	nə—əkon	-əl	nə—ək
2	kə—a	-ak	kə—əkw	-əkok	kə—əkon	-əl	kə—ək
3	wə—al	-a	wə—əkol	-əko	wə—əkon	-əl	—a
1p	nə—an	-anok	nə—əkon	-əkonok	nə—əkonen	-ol	nə—əkepən
12	kə—an	-anok	kə—əkon	-əkonok	kə—əkonen	-ol	kə—əkepən
2p	kə—awa	-awak	kə—əkowa	-əkowak	kə—əkoniya	-l	kə—əkəpa
3p	wə—awal	-awa	wə—əkowal	-əkowa	wə—əkoniya	-l	—ak

<i>TI</i>			<i>psAI</i>	<i>AI</i>	<i>You-and-Me Forms</i>	
1	nə—əmən	-əl	nə—əm	nə—	2-1	kə—i
2	kə—əmən	-əl	kə—əm	kə—	2p-1	kə—ipa
3	wə—əmən	-əl	—əm	—(w)	2(p)-1p	kə—ipən
1p	nə—əmənən	-ol	nə—əmopən*	nə—pən*	1-2	kə—əl
12	kə—əmənən	-ol	kə—əmopən*	kə—pən*	1-2p	kə—əlpə
2p	kə—əməniya	-l	kə—əmopa*	kə—pa*	1p-2(p)	kə—əlpən
3p	wə—əməniya	-l	—əmok*	—(w)ək*		

*The starred forms are dual; see the following appendix.

11.

MENOMINI

<i>TA Direct</i>			<i>TA Inverse</i>		<i>TI</i>	<i>AI</i>
1	nε—a·w	-ak	nε—Ek	-Ekok	nε—a·n	nε—m
2	kε—a·w	-ak	kε—Ek	-Ekok	kε—a·n	kε—m
3	—ε·w		—Ek		—am	—w
1p	nε—a·naw	-ak	nε—Ekonaw	-ak	nε—ε·mEnaw	nε—mEnaw
12	kε—a·naw	-ak	kε—Ekonaw	-ak	kε—ε·?	kε—?
2p	kε—a·wa·w	-ak	kε—Ekowaw	-ak	kε—ε·mwa·w	kε—mwa·w
3p	—ε·wak		—Ekok		—amok	—wak

<i>TA Passive</i>		<i>Inan.-Subj.</i>	<i>TA You-and-Me Forms</i>	
1	nε—Eke·m	nε—Ekom	2-1	kε—em
2	kε—Eke·m	kε—Ekom	2p-1	kε—emwa·w
3	—a·w	—Ek	2(p)-1p	kε—emEnaw
1p	nε—Eke·mEnaw	nε—EkomEnaw	1-2	kε—En
12	kε—Eke·?	kε—Eko?	1-2p	kε—En(En)emwa·w
2p	kε—Eke·mwa·w	kε—Ekomwa·w	1p-2(p)	kε—En(En)emEnaw
3p	—a·wak	—Ekok		

12.

MICMAC*

	<i>TA Direct</i>	<i>TA Inverse</i>	<i>TA Passive</i>	<i>You-and-Me Forms</i>	
1	n—an	n—(i)gon -eo	n—(i)gen	2-1	g—(i)n
2	g—an	g—(i)gon -eo	g—(i)gen	2p-1	g—(i)neo
3	o—an	o—(i)gon	o—(i)gen	2(p)-1p	g—(i)nen
1p	n—anen	n—(i)gonen	(n—(i)genen)		
12	g—aneno	g—(i)goneno	g—(i)geneno	1-2	g—olin
2p	g—aneo	g—(i)goneo	(g—(i)geneo)	1-2p	g—olineo
3p	o—aneo	o—(i)goneo	(o—(i)geneo)	1p-2(p)	g—olinen

	<i>TI</i>	<i>AI</i>	<i>Negative Imperative (Prohibitive)</i>			
1	n—emen	n—n	<i>TA</i>	3(p)	1	1p
2	g—emen	g—n	2	g—ao	g—(i)o	g—(i)oin
3	o—emen	o—n	2p	g—ap	g—(i)oip	g—(i)oin
1d	n—emenen	n—nen				
12d	g—emeneno	g—nenno	<i>TI</i>		<i>AI</i>	
2d	g—emeneö	g—neö	2	g—emo	g—o	
3d	o—emeneö	o—neö	2d	g—emöp	g—p	
1p	n—emoñinen	n—ñinen	2p	g—emoñip	g—ñip	
12p	g—emoñineno	g—ñineno				
2p	g—emoñineö	g—ñineö				
3p	o—emoñineö	o—ñineö				

*The subjunctive mode together with the negative imperative.

13.

NATICK

	<i>TA Objective</i>		<i>TA Absolute</i>	<i>TA Inverse</i>	
1	nu—	-óog	nu—	nu—uk	-ukquog
2	ku—	-oog	ku—	ku—uk	-ukquog
3	wu—oh	-oh	—au	—	—
1p	nu—óun	-óunónog	nu—ómun	(nu—ukqun)	-ukqunonog
12	(ku—óun	-óunónog)	(ku—ómun)	ku—ukqun	(-ukqunonog)
2p	ku—au	-auoog	ku—omw8	ku—ukou	-ukouóog
3p	wu—ouh	-ouh .	—aog	ku—uk8	-uk8oog

	<i>TI Objective</i>		<i>TI Absolute</i>	<i>AI</i>	<i>TA Passive</i>
1	nu—umun	(-ash)	nu—um	nu—	nu—it
2	ku—umun	(-ash)	ku—um	ku—	ku—it
3	wu—umun	(-ash)	—um	—(u)	—au
1p	nu—amunan	-	nu—umumun	nu—mun	nu—itteamun
12	(ku—amunan)	-	(ku—umumun)	(ku—mun)	(ku—itteamun)
2p	(ku—umuneau)	-amunáoash	ku—umumw8	ku—mw8	ku—itteamw8
3p	wu—umuneau	-amunaoash	—omwog	—(u)og	—oog

<i>TA You-and-Me Forms</i>					
2-1	ku—ch	1-2	ku—ush		
2p-1	ku—imw8	1-2p	ku—unumw8		
2(p)-1p	ku—imun	1p-2(p)	ku—unumun		

<i>TA Direct</i>			<i>TA Inverse</i>		<i>TI</i>		<i>AI</i>
1	ni—a·	-k	ni—ik	-iko·k	ni—a·n	-an	ni—
2	ki—a·	-k	ki—ik	-iko·k	ki—a·n	-an	ki—
3	o—a·n		o—iko·n		o—a·n	-an	—wa
1p	ni—a·na·n	-ik	ni—ikona·n	-ik	ni—a·na·n	[-in]	ni—min
12	ki—a·na·n	-ik	ki—ikona·n	-ik	ki—a·na·n	[-in]	ki—min
2p	ki—a·wa·	-k	ki—ikowa·	(-k)	(ki—a·na·wa·	-n)	ki—m
3p	o—a·wa·n		(o—ikowa·n)		o—a·na·wa·	-n	—wak

<i>psAI</i>		<i>TA Passive</i>	<i>Inan.-Subj.</i>	<i>You-and-Me Forms</i>	
1	ni—am	ni—iko·	(ni—ikon	-an)	2-1 ki—i
2	ki—am	(ki—iko·)	(ki—ikon	-an)	2p-1 ki—im
3	—am	—a·	(o—ikon	-an)	2(p)-1p ki—imin
1p	(ni—a·min)	(ni—iko·min)	[ni—ikona·n	-in]	
12	(ki—a·min)	ki—iko·min	[ki—ikona·n	-in]	1-2 ki—in
2p	(ki—a·m)	(ki—iko·m)	(ki—ikona·wa·	-n)	1-2p ki—inim
3p	(—amo·k)	—a·wak	(o—ikona·wa·	-n)	1p-2(p) ki—inimin

<i>TA Direct</i>			<i>TA Inverse</i>		<i>TA Inan.-Subj.</i>		<i>TA Passive</i>
1	nə—α	-k	nə—ək ^w	-əkok	nə—əkon	-al	nə—əke
2	kə—α	-k	kə—ək ^w	-əkok	kə—əkon	-al	kə—əke
3	wə—αl	-α	wə—əkol	-əko	wə—əkon	-al	—α
1p	nə—ana	-wak	nə—əkona	-wak	nə—əkonena	-wal	nə—əkepəna
12	kə—ana	-wak	kə—əkona	-wak	kə—əkonena	-wal	kə—əkepəna
2p	kə—αwα	-k	kə—əkowα	-k	kə—əkonα	-l	kə—əkepα
3p	wə—αwal	-αwα	wə—əkowal	-əkowα	wə—əkonα	-l	—ak

<i>TI</i>			<i>psAI</i>	<i>AI</i>	<i>You-and-Me Forms</i>
1	nə—amən	-al	nə—am	nə—	2-1 kə—i
2	kə—amən	-al	kə—am	kə—	2p-1 kə—ipα
3	wə—amən	-al	—am	—(w)	2(p)-1p kə—ipəna
1p	nə—amənena	-wal	nə—amopəna*	nə—pəna*	
12	kə—amənena	-wal	kə—amopəna*	kə—pəna*	1-2 kə—əl
2p	kə—amənα	-l	kə—amopα*	kə—pα*	1-2p kə—ələpα
3p	wə—amənα	-l	—amok*	—(w)ak*	1p-2(p) kə—ələpəna

*The starred forms are dual; see the following appendix.

16.

POTAWATOMI

<i>TA Direct</i>			<i>TA Inverse</i>		<i>TI</i>
1	nU—a	-n -k	nU—Uk	-UkOk	nU—an -Un
2	kU—a	-n -k	kU—Uk	-UkOk	kU—an -Un
3	wU—an		wU—UkOn		wU—an -Un
1p	nU—amUn		nU—UkOnan	-Uk	nU—amUn
12	kU—amUn		kU—UkOnan	-Uk	kU—amUn
2p	kU—awa	-n -k	kU—UkOwa	-k	kU—anawa -n
3p	wU—awan		wU—UkOwan		wU—anawa -n

<i>AI</i>		<i>psAI</i>	<i>TA You-and-Me Forms</i>
1	nU—	nU—Um	2-1 kU—ø
2	kU—	kU—Um	2p-1 kU—Um
3	—# ~ wak	—Um(wak)	2(p)-1p kU—yUmUn
1p	nU—mUn	nU—amUn	
12	kU—mUn	kU—amUn	1-2 kU—Un
2p	kU—m	kU—am	1-2p kU—UnUm
3p	—k ~ wik	—UmOk ~ Umwik	1p-2(p) kU—UnUmUn

17.

SHAWNEE

<i>TA Direct</i>			<i>TA Inverse</i>		<i>AI</i>	<i>psAI</i>
1	ni—a	-a·ki	ni—ekwa	-eko·ki	ni—	ni—a
2	ki—a	-a·ki	ki—ekwa	-eko·ki	ki—	ki—a
3	ho—a·li	-ahi	ho—eko·li	-ekohi	—(wa)	—amwa
1p	ni—a·pe		ni—ekona	-ekona·ki	ni—pe	ni—a·pe
12	ki—a·pe		ki—ekona	-ekona·ki	ki—pe	ki—a·pe
2p	ki—a·wa	-a·wa·ki	ki—ekowa	-ekowa·ki	ki—pwa	ki—a·pwa
3p	ho—a·wa·li	-a·wahi	ho—ekowa·li	-ekowahi	—(wa)ki	—amo·ki

<i>TI</i>		<i>TA Inan.-Subj.</i>	<i>TA Passive</i>	<i>You-and-Me Forms</i>
1	ni—a -a·na	ni—eko -ekona	ni—eko·pi	2-1 ki—i
2	ki—a -a·na	ki—eko -ekona	ki—eko·pi	2p-1 ki—ipwa
3	ho—a -a·na	ho—eko -ekona	—o·θo	2(p)-1p ki—ipe
1p	ni—a·pe	ni—ekope	ni—eko·pe	
12	ki—a·pe	ki—ekope	ki—eko·pe	1-2 ki—ele
2p	ki—a·na·wa	ki—ekona·wa	ki—eko·pwa	1-2p ki—elepwa
3p	ho—a·na·wa	ho—ekona·wa	—o·θo·ki	1p-2(p) ki—elepe

APPENDIX 2

NOTES ON THE PARADIGMS

1. **Proto-Algonquian.** The full array of forms involving obviatives is not given. For the pattern of the obviative-object forms, see §2.3. For the AI obviative-subject forms see Bloomfield, 1946, no. 108, 109. Data on these forms are not available from enough languages for a complete treatment. Where Bloomfield would reconstruct **o* I have reconstructed a contrast between **we* and **o*, in order to better account for the correspondences of Central *o* in the Eastern Languages. (For Central evidence pointing to **we*, see Hockett, 1957, no. 98; Haas, 1958b, p. 242.) However, I assume that **wa* had already contracted to **o* between consonants (and that Cree *wa* is therefore an analogical restoration). For the longer form **-eθene* postulated by Geary (whom Bloomfield followed) for theme-sign 4, see footnote 4. In the following paradigms the grammatical objects will be indicated by their arrangement: singular ending on the left, plural ending (the added increment only, except when there is fusion of the elements) on the right, as indicated by the numbers across the top of the Proto-Algonquian set. If no form for plural object is given, it may be assumed to be the same as the singular.

2. **Abnaki.** The basic source is Laurent, 1884. The forms marked (P) are taken from Prince, 1901, and written in Laurent's orthography. The TA passive is formed with **-ekw* + AI final **-esi* (Laurent, p. 196). The TA inanimate-subject forms are not attested.

PA **a* gives *ô*, a nasalized vowel (see my paper "The Eastern Algonquian Intrusive Nasal"). PA **e* gives *a*, thus falling together with **a*. The *a* in the second plural ending *-ba* is analogical to the first plural (contrast Penobscot, Malecite). Apparently final vowels were lost together with a preceding post-vocalic **w*, and the vowel has been restored in the AI singular and the form for 'you(sg.)—me'; but the history may have been more complex. Also note that **-iw-* gives *o*.

3. **Arapaho.** The basic source for these forms is Salzmänn, 1963. The forms marked (K) have been taken from Kroeber, 1916, transcribed in Salzmänn's notation. Salzmänn gives *ne—eebe* 'we (exclusive)—it, them' and *he—ów* 'we (inclusive)—it, them,' but each of these forms is attested only once (Salzmänn, 1963, p. 130-1).

PA **w*, **y*, **l*, and **n* (all of which give *n*) are dropped when secondarily final (after the loss of final vowels); in some cases a preceding short vowel is also dropped (the conditions are not clear). Prevocalic **k* disappears, but secondarily final **k* remains as *ʔ*. Initial vowels, whether primary or secondary, prefix an *h* (thus the apparent third person prefix *h-* appearing in some forms is merely a low-level phonological increment). PA **o/o* and **i/i* fall together to an *i/ii* which alternates with *u/uu* according to a vowel-harmony rule that is not yet entirely worked out. PA **a/a* gives *o/oo*. PA **m* gives *b~w*, the latter variant being used before back vowels. The origins of the Arapaho prosodic system will remain in the dark until a synchronic description is available.

4. **Blackfoot.** The forms are taken from Uhlenbeck, 1938 (Southern Piegan). They agree very closely with those in Tims, 1889 (Blackfoot proper). The third person TA direct and TI forms for singular object also occur with an added *-aie* (see Uhlenbeck, p. 188).

The vowels in parentheses are of uncertain status; I can find no explanation of them in Uhlenbeck, and they are not noted by Tims. The inverse theme-signs *-oki* and *-aki* are perhaps not phonemically distinct (see Uhlenbeck, p. 4); they could reflect **-ekw* with umlaut. PA **e*, **e*, **i*, and **a* all become *i*. The *i* in the TI theme-sign *-ixp* is perhaps from the third person *-im*. Blackfoot *i* causes assibilation of *k* and *t* (from **t*, **θ*, **l*); but note *ki-* from **ke-*. The alternation *x~x̣* is non-phonemic, and Uhlenbeck remarks on "the seemingly arbitrary putting in, or omitting, *x̣* and *x* before explosives, and before *s*, which is especially to be observed in certain verbal forms" (p. 3).

5. Cheyenne. The paradigms are taken from Petter, 1952, with *ts* written for *z*.

Final vowels (which end every word and are non-phonemically voiceless) are sometimes written plain, sometimes dotted, and sometimes omitted. PA **o/o·* and **i/i·* give *e* (= *i*); **e/e·* gives *a*; **a/a·* gives *o*. All vowel length (gemination) is the secondary result of contraction; where Petter marks a final vowel with a macron, a sequence long vowel + glottal stop + voiceless vowel is indicated. Original final **-wV* and **-nV* are lost. Intervocalic **k* and **w* drop in some cases; the conditioning factors of these and some other phoneme losses are not clear at present. PA **θ* and **l* give *t*. A following *e* causes assibilation of *t*; the conditions governing the appearance of a preceding excrescent *s* are not clear.

6. Cree. Essentially these paradigms come from Edwards, 1954, but I have followed Bloomfield, 1946, in the matter of vowel length before final *-w*. Lacombe, 1874, has also been consulted (see footnote 36). Judging from the Montagnais paradigms published by Rogers, 1960, (Mistassini) and Lemoine, 1901, and those kindly furnished me by Frank Siebert (Lake St. John) these dialects have undergone all the principal Cree developments. A full discussion of Cree-Montagnais-Naskapi differences will have to await fuller information on the many subvarieties of this language.

Final vowels are lost. PA **θ* becomes *t*. PA **e* and **i* fall together to *i*, but they remain morphophonemically distinct in suffix-initial position. PA **we* and **wi* fall together to *o*. Interconsonantal *wa* has been restored.

7. Delaware. The paradigms are from Voegelin, 1945 and 1946, with unattested forms supplied in parentheses. The paradigm labelled "Zeisberger" gives the TA direct forms for plural object from Zeisberger, 1830. Generally Zeisberger's forms resemble the morphophonemic formulae of Voegelin and the modern Munsee forms collected by Frank Siebert (which he kindly put at my disposal), but the solution to the whole problem of Delaware dialectology must await the analysis of more data. The TA passive uses **-ekw + *-esi* (Voegelin, 1946, §1.28). The TA inanimate-subject forms have *-əkw + -ən*, inflected like the objective TI (*ibid.*, §5.11).

Some secondary phonological variations seem to be due to the morphophonemic effects of the stress (*ibid.*, §1.39), but these have not yet been completely worked out: e.g., the alternation of *am* and *əm* in the TI theme-sign. In the paradigms *a* has been written throughout in the inverse theme-sign, although in actual forms it alternates with *o*. Another mystery is the interrupted syllables (*ihu* and *ihi*, *ibid.*, §1.17). Secondarily final **-a·w* and **-a·n* drop the **w* and **n*; apparently all final vowels are short (except where a *w* has been optionally dropped, see *ibid.*, §2.2). Delaware *o* and *o·* arise secondarily from the effect of *w* on *a* and *a·*; PA **o* and **o·* fall together to *u* and *u·* (phonemically distinct?). Zeisberger's forms (Z) demonstrate the recent nature of many changes attested in Voegelin's material (V): (Z) *-newo*, (V) *-né·yo*; (Z) *-al*, (V) *-a*. The *u·* in the TA inverse first plural is analogical. An absolute first plural ending *-na* exists beside *-māna*; the source of this differentiation is obscure.

8. Fox. These paradigms follow Bloomfield, 1927 (the forms in parentheses being supplied), except in the third person inanimate-subject forms. The form for 'it, they—him' is taken from Michelson, 1925, p. 88, line 7, and p. 78, line 37; the plural form is supplied on the basis of this.

Nasal-plus-stop clusters drop the nasal. PA **θ* and **l* give *n*.

9. Illinois. These forms are to be considered tentative normalizations of those found in the manuscript dictionary in the John Carter Brown Library, which is described as French and Miami-Illinois and is attributed to Father Jean Baptiste Le Boulanger.

The numeral 8 transcribes the omicron-epsilon ligature used regularly by the French missionaries instead of *ou* in the transcription of Indian languages. PA **θ* and **l* give *r*; **e* in initial syllables and before *n* gives *i*; **-a·na* drops the final vowel, at least graphically.

The TA inverse second plural has a form which would be expected for the passive (though the second plural form was omitted from the MS passive paradigm); the passive first plural is found in one inverse paradigm.

10. Malecite. These paradigms were kindly supplied by Karl Teeter on the basis of field-work done in 1963 with Peter Paul as principal informant. A tentative phonemic transcription is used. In the AI and psAI the Proto-Algonquian plurals are used as duals, new

plurals being formed with PA **etwi-* (Bloomfield, 1946, §72). AI plural (stem in *-i*): *nə-/kə—oltipən, kə—oltipa, —oltowək*; psAI plural: *nə-/kə—əmolitipən, kə—əmolitipa, —əmolitowək*.

PA **a* and **e* give *ə* alternating with *o*. PA **awa-* contracts to *o*. Final vowels drop together with a preceding *w* (except after *k*); secondarily final *ə* is lost too. Obviative plural *-h* is lost in most positions. For their respective non-final forms the inverse theme-sign has generalized *-əko-*, and the psAI theme-sign has generalized *-əmo-*. PA **θ* and **l* give *l*.

There are various morphophonemic combinations in the third person of the AI.

11. Menomini. The forms are taken from Bloomfield, 1962, and are written morphophonemically. In the first plural of the TA direct the theme-sign *-a-* can be set up for stems in consonant (other than *h*) plus *w*; other stems require the setting up of a theme-sign *-o-*. Rhythmic principles govern the choice of the variants of theme-sign 4.

Menomini has an intricate pattern of vowel modification, both quantitative and qualitative. In some grammatical endings some of the alternations have been eliminated by the generalization of one of the variants. An example of this is the reduction of the alternation *e~ε~ε·* (morphophonemically *ε*, from PA **e*) to *e~ε·*, which is symbolized by the morphophoneme *E*. PA **i* gives *e*; PA **e·* gives *ε·*. PA **o·* normally gives *o·*; the third plural forms with *o* have generalized a short vowel variant, which would have arisen regularly in certain contexts. The short vowel in the second plural of the TA inverse is to be similarly explained. Final vowels drop together with preceding post-consonantal semi-vowels. PA **θ* and **l* give *n*.

12. Micmac. The paradigms are taken from Pacifique, 1939. Parenthesized elements reflect problems of segmentation. In some cases Pacifique gives the third person prefix as *ög-* or *og-* with a "g euphonique qui se prononce à peine et ressemble à une aspiration" (p. 55). In addition to the TA inverse forms given here (which Pacifique says are the ones Maillard used consistently) Pacifique gives another set which has been restructured on the model of the old conjunct (Micmac indicative); see Pacifique, p. 158, remarque 1. For the AI plural the endings used with stems in *-a* and *-e* are given.

Elucidation of the phonological details of these forms must await more extensive investigation of this language.

13. Natick. The TA objective, inverse, you-and-me, and passive paradigms are from Eliot, 1666, without alteration (in some cases I have chosen an accented over an unaccented variant). Eliot's intransitive paradigm is really a psAI (=TI absolute), and his TI has an objective singular and an absolute plural. The forms he gives have been accordingly reclassified, and the missing forms (AI, TA absolute, TI objective plural) have been supplied from Trumbull, 1903, and Eliot, 1685. I have supplied the forms in parentheses.

A vertical *8* is used to transcribe Eliot's reclining *8*, described by him as the sound in "moody and book." PA **l* and **θ* both give *sh* finally, otherwise *n*. PA **e·* gives *a~á~ea*; **a* gives *a~o~u*; **a·* gives a nasalized vowel written *a~o~ó* (see my paper "The Eastern Algonquian Intrusive Nasal"). PA **k* is palatalized before **e·*, and the resulting sound is generally written *t* or *tt*. In some cases (conditions not clear) a secondarily final syllable ending in **w* or **n* is lost.

14. Ojibwa. The unmarked forms are from Bloomfield, 1957; the parenthesized forms are from Baraga, 1878 (written in Bloomfield's notation); the bracketed forms I have supplied.

Final vowels are lost together with a preceding **w*, except in words consisting of two short syllables. This rule is applied (to short vowels only) after the addition of the endings given. Thus the AI third singular ending *-wa* drops except in *nimpwa* 'he dies.' PA **θ* and **l* give *n*.

15. Penobscot. I owe these paradigms to the kindness of Frank Siebert, whom I wish to thank for expending a great deal of his time double checking some of the more infrequent forms. He also supplied information on haplologic variants, obviative forms, submodes, and so on, all of which contributed to my understanding of the paradigms, though not all could be included here.

PA **e* gives *ə*; **e·* gives *e*; **a* gives *a*; **a·* gives *α*; **o* and **o·* give *o*. In addition to the morphological innovations shared with Malecite (q.v.), Penobscot has second and third plural *-ənα* (contrast Malecite *-əniya*, Delaware of Zeisberger *-newo*) which compares with Abnaki *-enō*. AI plural (stem in *-i*): *nə-/kə—ólətipəna, kə—ólətipα, —ólətəwak*; psAI plural: *nə-/kə—amólətipəna, kə—amólətipα, —amólətəwak*.

16. Potawatomi. The forms are given in the morphophonemic system used in Hockett, 1948, and are taken from part III of that study.

PA **a*, **e*, and **i* all fall together to *U*; **o* and **we* give *O* generally, but under certain conditions **we* gives *wU*. In any sequence (one or more) of short-vowel syllables (with *U* or *O*) the odd-numbered vowels drop (except in final syllables). When they do not drop, *U* is *a* and *O* is *o*. In the AI third plural, if this rule causes the dropping of the stem-final vowel, the ending *-wik* is used; otherwise *-k*. Similarly in the psAI the choice of ending depends on whether or not the *U* of the theme-sign *-Um-* is dropped; phonemically *-mok* alternates with *-amwik*. Final short vowels are dropped morphophonemically; *ʃ* is a morphophoneme which prevents this loss. PA **θ* and **l* give *n*. In the AI and psAI third singular, *-wak* is a free variant of unexplained origin.

17. Shawnee. The basic source for these forms is Voegelin, 1936, supplemented by Michelson, 1907 (transcribed into Voegelin's system), and a number of forms which I elicited from Arthur Williams, 32, of Norman Oklahoma, who was employed as an informant at the Linguistic Institute of 1964, Indiana University, Bloomington, Indiana. As variants of the inanimate-subject second and third plural respectively Voegelin gives *ki—ekopwa* and *ho—eko*, and he gives the forms in *-eko* as used for both singular and plural logical subject.

Final vowels are normally preserved, but in final syllables **-nV* and post-vocalic **-wV* are dropped. Final syllables with *l* (from **θ*, **l*) are kept except when preceded by a syllable that would be dropped if final. This final-syllable loss apparently did not affect words of three syllables or less. However, all these developments have been blurred by morphological analogy, the patterns of which are not clear in all cases. Long vowels are shortened finally and before *h*.

HISTORICAL NOTES ON NEW ENGLAND LANGUAGES

BY GORDON M. DAY*

In panorama, New England Algonkian is very reminiscent of a northern muskeg, with its islands of more or less firm ground rising out of a generally uncertain terrain.¹ The firmest ground is formed by the two dialects still spoken in the region—Penobscot and Passamaquoddy—living languages offering no particular obstacles to the techniques of descriptive and historical linguistics, and it is gratifying that Frank Siebert's extensive study of Penobscot continues and that Karl Teeter has commenced the study of Passamaquoddy. No other Algonkian dialects are still spoken in New England, although two or three persons possess a limited knowledge of Wampanoag which may be vernacular. The St. Francis Abenaki dialect, having western New England origins, is still spoken at Odanak, Quebec, and by members of the band elsewhere.

For two extinct dialects, there is abundant documentation from the 17th and 18th centuries. The speech of the Abenakis, who came from the Kennebec River to the Sillery and Chaudière missions, is represented by Rasles's celebrated dictionary.² In fact, this dialect is one of the best documented of Algonkian languages. Besides Rasles, both Crespieul and Bigot wrote in it at Sillery, and to this dialect belongs also the two-volume dictionary of Aubéry, although it was signed and dated at St. Francis. The large dictionary of LeSueur, if it is ever found, will probably prove to be in the same dialect, judging from the fragment in the archives of the Séminaire de Québec. Lesser works by Virot and Roubaud and Nudenās's dictionary of roots are in this dialect also. The mouth of the Kennebec, the Pemaquid region, is witnessed only by the short but significant vocabulary collected by the Weymouth expedition in 1605.

The other large linguistic monument in New England is formed by Eliot's Massachusetts Bible, grammar, and religious tracts. These are supplemented by Cotton's vocabulary and a psalter and some notes by Experience Mayhew in the Martha's Vineyard dialect. Other southern New England dialects are represented by printed monuments ranging in volume and worth from Roger Williams's Narragansett "Key" through Pierson's Quiripi catechism and the late Pequot-Mohegan material salvaged in this century by Prince and Speck.³ Some kind of all-time low in dialect documentation was reached for Scaticook, the refugee village on the Housatonic. From this almost completely acculturated group, Speck rescued three sentences and 23 words in 1903.⁴

The Stockbridge band west of the Berkshires has provided us with several minor works—the vocabularies of Edwards and Jenks and the prayer books of the Sergeants and of Quinney and Aupaumut. These works and the vocabularies collected from Stockbridge descendants in Wisconsin by half a dozen students are generally counted as Mahican, but the dialectologist should consider the number of refugees who reached Stockbridge from the Wappinger country in

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Connecticut. Some future student of Mahican should examine all these documents and compare them with the Moravian manuscripts which represent the dialect of the Mahicans who migrated to the Susquehanna and later to the Ohio country.

It may be noted that all these data originated east of the Androscoggin River in Maine, on the southeastern coast, and west of the Berkshires. Perhaps the most conspicuous feature of Algonkian New England is the linguistic and ethnographic no-man's-land which occupies the heart of it—western Maine, New Hampshire, Vermont, most of Massachusetts, and northern Connecticut. There is not a single account or even an extended set of remarks about any group sessile between the Kennebec River and Lake Champlain prior to the disruption of the early pattern by the plagues and by the wars which were almost continuous after 1675. Nor does there seem to be any linguistic data from this region—definite, dated, and derived from a specific tribe in its original location. The only data existing are place and personal names which are linguistic data of a sort but which are seldom unambiguous.⁵ In the absence of data, all linguistic classifications for the region must be regarded as provisional.

This absence of data, however, has opened the door to invention. The Penacooks, who occupied the valley of the Merrimack River, may be taken as an example. Both archaeological reconnaissance and early documents indicate that they were an important group. They were in generally friendly contact with the English for about a century, but no one was thoughtful enough to leave a Penacook vocabulary. Local enthusiasm could not tolerate this vacuum, and in 1853 Judge Chandler E. Potter wrote an article entitled "The Language and Religion of the Pennacooks," actually an essay on local place names, explaining them all by the use of Cotton's Massachusetts vocabulary.⁶ In 1898 John G. Crawford wrote an article entitled "Indians of New Hampshire: Etymology of their Language,"⁷ in which he rebuked Potter for using Massachusetts and then produced an alleged Penacook vocabulary which had obviously been cribbed from Laurent's *New Abenakis and English Dialogues* that had appeared a few years before. Potter was a sober historian when he was not writing about the Penacooks, but his imaginative essays on them have taken the place of history in the popular mind and even in the schoolroom. His writings were also reprinted in Schoolcraft,⁸ and from there they found their way into the *Handbook of American Indians*.⁹ Serious students likewise have had their troubles trying to classify the Penacooks and have associated them at times with the Abenakis, with the Massachusetts, and with the Mahicans, as well as at times according them separate status.¹⁰

It is much the same story for other tribes in the problem area, groups of dubious affiliation which are mere names on the linguist's map when they appear at all—the Missisquois, Coösucks, Squakheags, Pocumtucks, Nonotucks, Agawams, Woronokes, Nipmucs, Pigwakets, and others. Lacking linguistic data from them in place, one must attempt to follow their migrations through the French and English documents with the hope of catching up either with their modern descendants or with a linguistic work which, although made at another station, may be traced back to a particular band's place of origin in Western New England.

Practically all the tribes in this problem area settled, after one to several removals, at two mission villages on the St. Lawrence River—the so-called

Abenaki villages of St. Francis and Bécancour—but there is the additional complication that these villages also received the more eastern Abenakis from the Chaudière mission in 1705–06,¹¹ and Penobscot and Malecite families at a later date. Bécancour now contains only three families and practically no linguistic recollections. The descendants of those Bécancour families that migrated to Lake St. John are now Montagnais in culture. Speck caught the last gasp of native language at Bécancour in 1912, but his naming it ‘Wawenock’ should be queried pending a thorough study of the history of the band.¹²

This leaves St. Francis as the only living linguistic and ethnographic source for western New England. The St. Francis band, with its long existence as a small native enclave in rural French Canada, its 250 years of Christianity, its intermarriage with New England captives, and its Dartmouth-educated boys, has often been regarded as too civilized and has been largely by-passed by students in favour of what appeared to be more primitive groups. The band still contains a handful of elderly conservatives, however, and among them they have preserved a surprising amount of old lore. The language is still perfectly vigorous among the elderly and middle-aged. The problem is not, then, that there is no St. Francis culture but that there are seemingly only one culture and one language in a village said to have been made up from ten or a dozen bands. Whose culture and language is it? Or if it is a composite, who contributed what? I have made a study of the family dialects within the band, of the genealogies of and dominant speech influences on each speaker, and finally of the historical movements of the various components of the band. Historical conclusions are not yet clear, but four family dialects have been distinguished, and the first data on the principal dialect, whatever its provenience, have just been published.¹³

The other possibility for identifying dialects—that of finding a manuscript grammar, dictionary, or other linguistic record from some specific Western New England group *en route* to Canada—did not seem at all bright until 1960. Repeated attempts to find the LeSueur dictionary and the Cutter manuscript had failed.¹⁴ But in that year, two breaks occurred. First, a map was found in the collection of the New Hampshire Historical Society, which showed that the language of the Indians on the upper Connecticut and Androscoggin rivers in the late 18th century was essentially the modern St. Francis dialect.¹⁵ Second, and much more important, the archives of the Order of St. Sulpice in Montreal became accessible to students for the first time in many years. These archives contain the manuscript dictionaries, grammars, and devotional texts produced by the Sulpician Fathers at their several Iroquoian and Algonkian missions. Eventually these missions were all united at Lake of Two Mountains, and there in the last century the manuscripts were seen by two investigators from the Bureau of American Ethnology, Erminnie A. Smith and James C. Pilling. Unfortunately, the Smith and Pilling lists do not entirely agree and together do not name all the manuscripts in the collection, which is a veritable treasure trove of high interest to Algonkianists and Iroquoianists.¹⁶

According to the Sulpician philologist, Jean-André Cuoq, there were formerly among the Sulpician documents two manuscripts which might have come from Western New England. In his Algonkin dictionary, in a footnote to the word ‘Maingan, *loup*,’ he wrote, ‘Maingan is still the name of an extinct nation of Loups. Their language, judging by two notebooks in the hand of M. Mathevet, appears to me to hold a middle place between Algonkin and Abenaki, with a

mixture of Iroquois. These two notebooks unfortunately perished in the fire of 1877."¹⁷ Again in his historical sketch of the Sulpician missions, he remarked, regarding Father Mathevet, "There remains to us still from this missionary other proofs of his zeal and of his ability, namely a vocabulary in the language of some Loups, a language which he would have wished to learn in order to instruct the poor infidels of that tribe, who would come to settle at the Lake."¹⁸ At one time or another, the French included under the name 'Loup' all the tribes between Massachusetts and Virginia and even the Pawnee of the Great Plains. Of what possible significance, then, would Mathevet's lost notebooks be for New England studies? It seems to have escaped general attention that early maps placed Loups on the lower Connecticut River, at Coös on the upper Connecticut, at Penacook on the Merrimack, and even in western Maine.¹⁹ It is true that a few Pawnees were known in the Montreal missions before Mathevet's time, and during the early years of his residence in Canada, Delawares from the Ohio country were well known to the French. Nevertheless, the Loups nearest Montreal and most likely to have been encountered by a Sulpician were those of Western New England and the fugitive Schaghticokes on the Hudson. This made the loss of Mathevet's notebooks especially regrettable, but prior to 1960 there was no reason to suspect the existence of other Loup documents.

A search of the archives in 1960, nevertheless, turned up a Loup manuscript.²⁰ It was anonymous, approximately octavo, of about 120 pages, and was entitled simply "Mots Loups." It was obvious from quick inspection that it was Algonkian and therefore not Pawnee. It was in an L-dialect and therefore not Wappinger or Mahican. Lexically, it was not Delaware. This seemed to leave only some tribe from the Western New England region as the source. A study of the handwriting has since shown that the author was Father Jean-Claude Mathevet,²¹ and circumstances point toward the period after 1740 and perhaps before 1760 as the time of its composition. Nowhere is the tribe that spoke this dialect clearly identified. Their own name for themselves is given, but it is a new name in the literature. Eventually it may prove informative. Internal evidence suggests that the manuscript may have been made at Missisquoi or from Indians who had migrated from Missisquoi. Inasmuch as Missisquoi may have been a refugee village at the time, this information permits only speculation that the dialect may have been Penacook or Schaghticoke, the Schaghticokes themselves being a refugee band of Southern New England origins. In its present state, the manuscript is in two parts which may represent two fascicles sewn together. The first thirty-nine pages and a foreleaf appear to be a field notebook in which Mathevet recorded his first impressions of this dialect, judging from the crossed-out words and interlined corrections. The remainder of the manuscript is a revision which incorporates, in no particular order, new words and phrases and the writer's second thoughts on some, but not all, of the first part. It may well be that these are the same notebooks which Cuoq saw and thought had been lost.

This manuscript might have been mined immediately for linguistic and ethnographic data, but it appeared to be a reference point for Algonkian linguistics in New England on a par with Rasles's dictionary, Eliot's works, and Roger Williams's "Key," and, as such, deserving of publication. The redaction was accordingly commenced last year and is now well advanced. Pending the publication of the complete work and commentary, a few sidelights may be mentioned.

The words and phrases are arranged to form a Loup-French word and phrase book, but there is no alphabetical order. The order is either random or by groups of related ideas or objects, such as commonly occur in eliciting vocabulary. Verbs are frequently expanded. Loup words often have Algonkin or Iroquoian equivalents, and there are several inserted paragraphs in some Iroquoian language. These indications that the writer knew both Algonkin and Iroquoian were not very helpful even at the beginning of the study, because several of the Sulpicians learned both languages. Since it has been determined that the writer was Mathevet, whose knowledge of both languages is well exemplified in other manuscripts, these entries serve only to expand the semantic referents of the Loup words.

The most significant of the non-Loup insertions are some three pages of Loup-Abenaki comparisons and some miscellaneous Abenaki entries. The interesting thing about these Abenaki data is that they are unlike all the other Abenaki writings of the 18th century but practically identical with the modern speech at St. Francis. They also shed new light on the century-old controversy about the apparent change from an R-dialect to an L-dialect among the Canadian Abenakis. Missionaries were still writing an R in 1760,²² and educated Indians sometimes wrote R in their signatures until about 1850, at which time the spoken language most probably employed L.²³ It is very noticeable, but not particularly diagnostic, that most of the loan words in this dialect were drawn from English.

Scattered clues to the culture of these Loups will probably be of more value for characterizing the culture of the group when it has been identified than for identifying it.

In résumé, western and central New England have always been unknown territory linguistically, and no particular hope has been held out for new information on it. Four dialects from this region, however, still survive at St. Francis, probably modified by contact with each other, and Mathevet's "Mots Loups" probably represents another and much more divergent dialect from the region. I think that there is some reason to be optimistic that when an exhaustive and rigorous study has been made of the historical evidence for New England tribal movements, the peopling of Canadian missions, and the genealogies of specific families at St. Francis, it will be possible to lay down the main boundaries of the languages and dialects on a map of New England.

NOTES

¹ Most of the data in this paper were obtained in the course of research under grants from the Spaulding-Potter Charitable Trusts of Manchester, New Hampshire, and from the National Science Foundation.

² See James C. Pilling, *Bibliography of the Algonquian Languages* (Washington, 1891), for all Algonkian works not cited in a footnote.

³ Frank G. Speck's, "Native Tribes and Dialects of Connecticut: a Mohegan-Pequot Diary," *Bureau of American Ethnology Annual Report*, 43 (1928): 199-287, is the most substantial publication of this material and contains a bibliography of the other Mohegan-Pequot material in footnote 1, p. 206.

⁴ John Dyneley Prince and Frank G. Speck, "Dying American Speech-Echoes from Connecticut," *Proceedings of the American Philosophical Society*, 42 (1903): 346-352.

⁵ There is one fragment from the periphery of the problem area. The account book of John Pyncheon of Springfield, Massachusetts, contains the names of thirteen months and three fur-bearing animals in the dialect of some of the Indians who traded with him about 1650. The original is in the Sylvester Judd Papers, Forbes Library, Northampton, Massachusetts.

- ⁶ *The Farmer's Monthly Visitor*, 13 (1853): 321-324 (Concord, New Hampshire).
- ⁷ *Manchester [New Hampshire] Historic Association Collections*, 1 (1898), pt. 2: 177-188.
- ⁸ Henry R. Schoolcraft, *Historical and Statistical Information, Respecting the History, Condition and Prospects of the Indian Tribes of the United States*, 6 vols. (Philadelphia, 1851-57), 5: 217-237.
- ⁹ *Handbook of American Indians North of Mexico*, ed. Frederick W. Hodge, Bureau of American Ethnology, Bulletin No. 30, 2 vols. (Washington, 1907-10).
- ¹⁰ These efforts are summarized in Gordon M. Day, "English-Indian Contacts in New England, *Ethnohistory*", 9 (1962): 24-40.
- ¹¹ Thomas-M. Charland, *Histoire de Saint-Francois-du-Lac* (Ottawa, 1942), p. 74.
- ¹² Frank G. Speck, "Wawenock Myth Texts from Maine," *Bureau of American Ethnology Annual Report*, 43 (1928): 165-197.
- ¹³ Gordon M. Day, "A St. Francis Abenaki Vocabulary," *International Journal of American Linguistics*, 30 (1964): 371-392.
- ¹⁴ A vocabulary from the Indians who visited Cutter's truck house on the lower Saco River between 1742 and 1746. James Sullivan, *The History of the District of Maine* (Boston, 1795), p. 265.
- ¹⁵ Plan of Chief Philip's Grant, 1796.
- ¹⁶ Many of the manuscripts are described in Pilling's *Bibliography of the Algonquian Languages* and *Bibliography of the Iroquoian Languages* under the separate Sulpician authors. All of them may now be seen on microfilm at the American Philosophical Society Library in Philadelphia.
- ¹⁷ *Lexique de la langue Algonquine* (Montreal, 1886), p. 198.
- ¹⁸ "Anotc Kekon," *Proceedings and Transactions of the Royal Society of Canada*, 11 (1893), pt. 5: p. 173.
- ¹⁹ Especially the anonymous *Carte d'une Grande Partie du Canada* and Father Joseph Aubéry's *Carte pour les hauteurs de terre . . .*, Numbers B902-1680 and H3/900-1715 respectively in the Map Division, Public Archives of Canada.
- ²⁰ I am grateful to J. Raymond Denault, Director of the Canadian Microfilming Company, for discovering this manuscript and calling it to my attention.
- ²¹ I am indebted to Father Thomas-M. Charland, O.P., on whose paleographic authority this identification rests.
- ²² For example, the Nudenās dictionary and Father Pierre Roubaud's letter to the Abenakis in the Haldimand Papers, M.G. 2, Vol. B-26, Public Archives of Canada.
- ²³ For example, Pial Pol Wzōkihlain signed his name Osunkhirine, although he wrote four books in Abenaki employing L throughout.

SOME OBSERVATIONS ON A COMPARATIVE ARAPAHO-ATSINA LEXICON

BY ALLAN R. TAYLOR*

1. The purpose of this paper is to present with comments a comparative Arapaho-Atsina¹ lexicon of 261 items (256 entries). This undertaking is of value for several reasons. Perhaps the most important is that the almost total lack in print of accurately recorded Atsina materials is now somewhat alleviated. Moreover, this lexicon furnishes a point of departure for comparison of the two Arapaho dialects still extant, as well as those recently extinct dialects briefly recorded at the beginning of this century by A. L. Kroeber. The lexicon also makes available to Algonkianists sufficient data to confirm the few historical statements regarding these dialects made by Michelson in his formidable article, "Phonetic shifts in Algonquian languages," and furthermore to permit the formulation of several others of use in Algonkian comparative phonology. Arapaho forms are taken mostly from Salzmänn,² but some needed forms were taken from Kroeber.³ An occasional Arapaho recording by Michelson is also included. Such forms are identified by a following (K) or (M) respectively. Atsina forms are all from my own field notes; all my Atsina materials are on tape, so that full rechecking of all field recordings is possible.⁴ Also included in the Atsina portion of the lexicon are several forms from the first list collected for any of the Arapahoan dialects. The list was connected around 1785 somewhere on the south fork of the Saskatchewan River by a Hudson's Bay Company trader named Edward Umfreville.⁵ The twenty-four words included here permit some conclusions concerning the phonology of the language as it was spoken 180 years ago. Finally, some relevant comparative Algonkian materials have been included, both reconstructions and forms from contemporary Algonkian languages. It should be noted that not all portions of such comparative materials are necessarily assumed to be cognate.⁶

2.0. Differences exist between the two dialects in all features: consonants, vowels, and prosodic features. Of these three, only the first two will be collated in this study. In citing examples (always by English gloss) I include most, but not necessarily all, lexemes in which the features under discussion occur. Glosses in bold face italics indicate that a PA reconstruction is given with the entry in the lexicon.

2.1. The following are the phoneme inventories of Arapaho and Atsina. Arapaho:⁷ /b t č k ʔ θ s x h n w y i e o u/. Atsina:⁸ /b bʲ t tʲ k ʔ č c θ s h n w y i ε ɔ o/. Pitch is phonemic in both dialects: high tone is marked by the acute accent; low tone is unmarked. The Atsina vowel phonemes are written using

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symbols which most nearly approximate the phonetic nature of their chief allophones. It should be kept in mind that Arapaho / o u / are equal to Atsina / ɔ o /.

3.0. Consonant correspondences in the two dialects show some variety and are interesting both from the point of view of their influence on mutual intelligibility between the dialects and because of the information which they yield concerning the history of the Arapahoan subgroup of Algonkian. Some are of significance in the reconstruction of Proto-Algonkian itself.

3.1. Two rather common consonant correspondences require no comment. The first is a correspondence of /b/ to /w/ in either direction. As noted as early as Kroeber,⁹ these two reflexes of PA */m/ are predictable on the basis of the following vowel in Pre-Arapahoan: /b/ precedes an actual or former front vowel, /w/ an actual or former back vowel. The problem requiring solution in such instances is the vowel disagreement. The second is a correspondence of Arapaho initial /h/ to Atsina initial /ʔ/. This correspondence is absolutely regular for initial position.¹⁰

3.2. The most frequent differences between Arapaho and Atsina consonants are to be found in various correspondences among the fricatives /x/, /s/, and /θ/ on the Arapaho side, and the fricatives /s/ and /θ/, and the affricates /c/ and /č/ on the Atsina. Behind these correspondences are a number of different historical prototypes; some are reflexes of a probable single Proto-Algonkian consonant, but most such are the reflex of Proto-Algonkian clusters. Michelson barely touched on the problem in his discussion of Arapaho,¹¹ and I can do little more here than group the correspondences and identify the commonest apparent historical prototypes.

3.21. For Arapaho /s/ to Atsina /θ/ see *ARM*, *ARROWHEAD*, *BUG*, *CHILD*, *CREATURE*, *DAUGHTER-IN-LAW*, *EIGHT*, *ELEVEN*, *GIRL*, *HUNDRED*, *LIP*, *MARE*, *MEAT*, *NECK*, *NIECE*, *OLDER BROTHER*, *ONE*, *PUBIC HAIR* (female), *RAIN*, *ROPE*, *SACRIFICE*, *SEVEN*, *SISTER*, *THREE*, *TOBACCO*, *TWO*, *WEASEL*, *WIFE*, *WOMAN*.

Probable historical prototypes are various. Michelson has already pointed out¹² that PA *-ʔθ- yields this correspondence; to his *THREE* and *OLDER BROTHER* may be added *DAUGHTER-IN-LAW*. On the basis of the latter it can be seen that a lengthening of the preceding vowel is also part of the shift and, in Atsina, a falling pitch on the lengthened vowel. Other sources for the correspondence are as follows:

*-θk-	<i>ARM</i> , <i>WOMAN</i>
*-čy-	<i>CHILD</i>
*-š-	<i>TWO</i>

3.22. For Arapaho /x/ to Atsina /θ/ see *BONE*, *COUGAR*, *HORSE*, *KNIFE*, *MARE*, *PRAIRIE DOG*, *RAT*, *SKUNK*, *SPRING*.

Reconstructions available for comparison have *-θk-, *BONE*; and *š-, *SKUNK*.

3.23. For Arapaho /x/ to Atsina /s/ see *BARK*, *BEAR*, *CLAW*, *EIGHT*, *ELK*, *ENEMY*, *GRASS*, *GUT*, *HORSE*, *LODGEPOLE*, *PARFLECHE*, *SADDLE*, *SEVEN*, *SIXTEEN*, *SON-IN-LAW*, *TEN*.

Reconstructions have

*-θk-	<i>BARK</i> , <i>BEAR</i>
*-šk-	<i>CLAW</i>
*-hθ-	<i>TEN</i>
*-ʔs-	<i>EIGHT</i>
*-θ-	<i>SON-IN-LAW</i> , <i>ENEMY</i>

The occurrence of *θ here is surprising.

3.24. As can be seen from the foregoing, one of the major problems of the history of Arapaho-Atsina consonantism is the discovery of the conditioning factors for the numerous reflexes of Proto-Algonkian clusters *θk, *šk, *hk, probably also *čk and *čk, and of the unclustered phonemes *š and *θ.

3.25. For an Arapaho /θ/ to Atsina /s/ correspondence, see *KIDNEY*. The historical background of this isolated correspondence is unknown. Arapaho /θ/ to Atsina /c/ is found in *ARROW*. The reconstruction of *ARROW* has *-θwi-. An additional historical source for this correspondence, as already noted by Michelson,¹³ is PA */č/. To Michelson's examples, *BOAT*, *GHOST*₁, *LEG*, *NAVEL*, add *FOOD* and *TOOTH*.

3.3. A large number of examples of the correspondence Arapaho /θ/ to Atsina /t/ and /tʲ/ are included. As Michelson has already demonstrated,¹⁴ the historical prototype of this correspondence is PA */θ/. Atsina has /tʲ/ before pre-Arapahoan */i/, /t/ elsewhere. Examples of this are *ASHES*, *BREAST*, *CRANE*, *CROWN-OF-HEAD*, *DOG*, *FATHER-IN-LAW*, *FIRE DRILL*, *FIVE*, *GUT*, *HAND*₁, *HEAD (HAIR)*, *KIDNEY*, *MILK*, *NEPHEW*, *PAPER*, *PENIS*, *SISTER-IN-LAW*, *SON-IN-LAW*, *STAR*, *TESTICLE*, *THUMB*, *WING*.

3.4. Very common also are two other correspondences where Atsina has a palatalized form of the consonant which appears in Arapaho. In both instances the palatalization is present when a pre-Arapahoan */i/ or */y/ followed the consonant directly. The correspondences are Arapaho /b/ to Atsina /bʲ/ and Arapaho /t/ to Atsina /tʲ/. When the critical pre-Arapahoan phonemes did not follow the consonant, both dialects have the same consonant, viz. /b/ and /t/.

For the correspondence /b/ to /bʲ/ see *BERRY*, *BROTHER*, *BUFFALO COW*, *BUG*, *DAUGHTER-IN-LAW*, *DEER*, *FEATHER*, *FOOD*, *GHOST*₂, *GREASE*, *HEAD (HAIR)*, *PUBIC HAIR (male)*, *ROAD*, *SISTER-IN-LAW*, *SONG*, *SPRING*, *THROAT*. Interesting examples in this group are *LOUSE* and *SISTER-IN-LAW*, where the comparative examples do not have */i/ following the source of the Atsina /bʲ/.

For the correspondence /t/ to /tʲ/ see *CLAY*, *CLOUD*, *DANCE*, *HAND*₁, *HEEL*, *KIDNEY*, *MEDICINE MAN*, *MOUTH*, *SIX*, *SONG*, *SWEAT LODGE*, *TAIL*, *TREE*. Note that in *HAND*₁, *HEEL*, and *MOUTH* the /i/ from PA */o/ affects a preceding Atsina /t/ as an /i/ not resulting from the pre-Arapahoan merger of */o/ with */i/. In *SIX* the two dialects differ in their treatment of */t/ followed by */w/, but this may be the regular development of */tw/, since no contrary examples are available.¹⁵

3.5. There are a large number of correspondences of Arapaho /k/ and /č/ with Atsina /k/, /č/, and /c/. These are all reflexes of Proto-Algonkian */p/ in differing environments. The pattern has been obscured by subsequent changes in the following vowels, but the pre-Arapahoan developments were apparently as follows: before */a/, Proto-Algonkian */p/ became */k/ in pre-Arapahoan; before */e/, PA */p/ became pre-Arapahoan */č/; before */i/ (from both PA */i/ and PA */o/), Proto-Algonkian */p/ became pre-Arapahoan */c/. Arapaho later merged pre-Arapahoan */č/ and */c/ as /č/, but Atsina maintains the contrast.¹⁶

For Arapaho /k/ to Atsina /k/ see BACK, FIRE DRILL, *GHOST*₁, LODGE-POLE, LUNG, MOON, *RABBIT*, SADDLE.

For Arapaho /č/ to Atsina /č/ see BLUE, BUFFALO BULL, *CHIEF*, DOOR, GREY, *HAND*₁, ONE, PARFLECHE, *PRAIRIE CHICKEN*, SHOULDER, SMOKE, SUMMER, *WINTER*. The same correspondence occurs in one example where the following Arapaho vowel is not /e/, see BREAD; in BREAD, vowel assimilation has obliterated what must have been /e/ at an earlier time.

In two other examples, COUGAR and ROCK, Arapaho has /k/, Atsina has /č/. The reverse correspondence is found in CHEST. Vowel shifts through assimilation must be the explanation here also.

For Arapaho /č/ corresponding to Atsina /c/ see *BRAIN*, BREAD, CALF OF LEG, CHEST, CROWN-OF-HEAD, *ENEMY*, GALL, GRASSHOPPER, LEAF, MILK, PIPE, *RIB*, RIVER, SKIN, SWEAT LODGE, *TOOTH*, *WATER*, *WHITE*, *WINTER*.

For Arapaho /k/ to Atsina /c/ see BULLET, *CHIN*, GUN, MOUSE, RAT, ROPE, SKULL, SOUP.

From the foregoing examples it is apparent that Atsina can be of value in reconstructing PA prototypes containing */p/, for in its reflex of this phoneme Atsina preserves also an indication of the height of the following vocoid. When the latter was high, Atsina has /c/; before low PA vowels, Atsina has /č/ before front vowels, /k/ before back vowels.

3.6. A rare correspondence of Arapaho /y/ to Atsina /n/ is found initially in one set, see *OTTER*. One additional example of this correspondence is attested if one admits one form from the Umfreville list, which records *ne-an* for FOUR where modern Atsina has *yæn*. Michelson stated that the Atsina reflex for PA */ny- is /y/, but he cited only *FOUR* and *FIVE* as examples.¹⁷ Considering the Umfreville recording, the modern Atsina word for *FOUR* must represent a special development (perhaps anticipation of the initial in *FIVE*), so that possibly the proper Atsina reflex of PA */ny- before */e/ is /n/, not /y/. If this reasoning is correct, then the reconstruction for *OTTER* probably should be */nyekekwa. This correspondence occurs medially also in one set, see *FORTY*.

3.7. In a large number of forms Arapaho has a final /ʔ/ where Atsina has nothing. Not all instances of Arapaho final /ʔ/ have Atsina cognates with no final /ʔ/, however. For examples of Arapaho /-ʔ/ corresponding to Atsina /-o/, see BADGER, BLACK, *BOW*, BURN, *DAY*, *EAR*, ELEVEN, FISH, *FORTY*, FOURTEEN, *GOPHER*, HUNDRED, LONG, MEAT, PORCUPINE, QUILLS, RAIN, SQUASH, THIRTY, TICK, TWENTY, TWINS, WHITE, YELLOW. For examples of Arapaho /-ʔ/ corresponding to Atsina /-ʔ/ see ANKLE, *CHIN*, COLT, *DIRT*, GOOSE, GRASS, HAT, NAPE, *NIGHT*, SKY, *STAR*, *WING*. When both dialects have a final glottal stop, the historical

proto-type is a cluster, either */xk/, */θk/, or */nk/. When the Atsina cognate has no final glottal stop, in the examples where comparative evidence is available, the historical source is */k/, see *BOW*, *DAY*, *EAR*, *GOPHER*, *PORCUPINE*, *QUILLS*, and the verbs *BLACK*, *BURN*, *LONG*, *RAIN*, *WHITE*, *YELLOW*, where the Arapaho /-ʔ/ reflects the inanimate intransitive conjunct suffix *-k. If */k/ in suffixes is developed differently in Arapaho from */k/ in prefixes and stems, as seems possible, then Arapaho affords evidence that some animal names have a suffixal /-k/ of unknown meaning.

3.8. One correspondence of wholly unknown origin is that of Arapaho /xʔ/ to Atsina /hʔ/. This is found in only three sets, *BADGER*, *MINK*, and *THUNDER*. On the other hand, the correspondence of Arapaho /hʔ/ to Atsina /hʔ/ is rather common (10 sets), see, for example, *ROCK* and *SON*. The historical prototype of this latter correspondence is */ʔs/.

4.0. Vowel comparisons between the two dialects show that, in the main, vowels are the same in both. There has been a shift of short */e/ to /i/ in some cases in Atsina, but the conditions are not clear to me, and I suspect that the picture might have been blurred by some misassignment of allophones on my part. Since I have not had the opportunity for careful contrastive rechecking, I can not deal with this problem at the present time.

4.1. Differences in vowels at the same level occur rather frequently, one dialect having a back vowel, the other the corresponding front vowel. Many cases are probably due to regular morphonemic alternations or to the operation of rules of vowel harmony as yet not understood (see, for instance, *BADGER*). In a fairly large group of these there is a correspondence of Arapaho /u/ to Atsina /i/; see for example *BULLET*, *EIGHTEEN*, *ELK*, *GRASS*, *GUN*, *MOUSE*, *SEVENTEEN*, *SIXTEEN*, *SOUP*. Probably also belonging here are, or were at one time, all words ending in /x/ in Arapaho and /s/ in Atsina. The historical background of this correspondence is unknown to me. Occasional correspondences of vowels at different heights also occur, see for example *CRANE*, *RIVER*. Why this difference occurs is also unknown to me. Other sporadic differences are found, such as in *MINK*, where Arapaho /ei/ corresponds to Atsina /ɔ/.

4.2. Of greater interest are the fairly large number of correspondences between Arapaho diphthongs and Atsina long vowels. In several examples Arapaho has /ei/, Atsina has /εε/; see *BUFFALO*, *FOUR*, *MEAT*, *OWL*, *SACRIFICE*, *SISTER*, *SKIN*, *SPARROW HAWK*, *WOMAN*. Where comparative materials are available from other languages the vowel is /ee/, and Atsina then appears to be the more conservative. Arapaho does not always have /ei/ when the prototype was */ee/, however. The conditions necessary for the /ei/ reflex are unknown to me. A slightly fewer number of examples have Arapaho /ei/ corresponding to Atsina /ii/, see *GRANDMOTHER*, *HEAD (HAIR)*, *OLD MAN*, *SISTER-IN-LAW*, *THROAT*, and *TOOTH*. Reconstructions here have *-ii- (*GRANDMOTHER*, *SISTER-IN-LAW*, *TOOTH*) showing that Arapaho is again less archaic. The situation is otherwise in *THROAT*; in this case the /ei/ of Arapaho is the expected Arapaho correspondence, and the Atsina /ii/ is unusual. One example is available of a correspondence of Arapaho /ii/ to Atsina /ei/ (i.e., a reversal of the foregoing correspondence), see *SIX*.

4.3. Short vowels with low pitch in non-final syllables are subject to syncope in Atsina when located between a non-clustered consonant and an intervocalic

/ʔ/ or /h/. In Arapaho the vowels which correspond to the syncopated Atsina vowels are /i/, /e/, and /o/. Examples are numerous, see *ASHES*, *BALL*, *BREAD*, *CACTUS*, *CALF OF LEG*, *CREATURE*, *GRANDMOTHER*, *HAND₂*, *HEAD (HAIR)*, *MARE*, *MOUNTAIN*, *NEPHEW*, *PAPER*, *PARFLECHE*, *PUBIC HAIR (female)*, *SADDLE*, *SHOE*, *SHOULDER*, *TURTLE*. Probably also belonging here is *BEE*. Other examples of unpatterned syncope in Atsina are *ANUS*, *MILK*, *PERSON*, and *SOUP*.

5.0. In the final portion of this paper I should like to devote some discussion to several individual items in the lexicon.

5.1. Some of the twenty-four Umfreville forms included have already figured in the discussion of correspondences between the two Arapahoan dialects. Umfreville forms not already examined will now receive some attention. In general the forms agree almost entirely with modern Atsina, and differences are probably accidental for the most part.

5.11. In agreement with Arapaho, *ASHES* and *DOG* both have /θ/ where /t/ is expected. *FIVE*, on the contrary, has the expected /t/. This ambivalence is hard to explain. Also in agreement with Arapaho, Umfreville records /s/ in *EIGHT*, *SEVEN*, *THREE*, *TOBACCO*, and *TWO*, where Atsina today has /θ/. Only two other examples of Atsina /θ/ occur in *KNIFE* and in *SHIRT*, and Umfreville writes these correctly. The writing of /s/ for some, /θ/ for others, where Atsina today has only /θ/ must be due to mishearing on Umfreville's part. Atsina /θ/ sounds much closer to /s/ to the English-speaking person than to English /θ/, and I occasionally confused these myself on my first contact with the language.

5.2. Several phonological conclusions and, startlingly, one sociological one can be drawn from some of the forms which Umfreville recorded 180 years ago.

5.21. Initial /k/ in *ONE* can hardly be of historical significance, since the correct correspondence for Atsina is /č/. The reason is probably the following. All instances of /č/ in the speech of men have as their counterpart in female speech a palatalized velar stop. 'One' pronounced by a woman is [kʲæ·θiy], essentially as written by Umfreville. If the informant were a woman, one might also expect an initial [kʲ] in *ASHES*, but the printed list has *h*. This is probably a typesetter's misreading of a *k* in a handwritten manuscript, and Umfreville's informant must have been the Atsina wife of some company employee. Thanks to the list we know that this difference in men's and women's speech is at least two hundred years old.

5.22. In *AXE* Umfreville writes an *e* in the second syllable where both Arapaho and Atsina today have a back vowel. This is probably an instance of /e/ before assimilation to the back vowels in the syllables on either side. The reflexes of PA */p/ in *BREAD* and of */m/ in *BADGER* indicate that such assimilations have occurred.

5.23. At the present time [b] and [m] are occasionally found without contrast as the allophones of initial /b/. Umfreville's writing of *m* in *TEN* must be an instance of the same sort of free allophonic variation. In *SHIRT* Umfreville writes *w* where contemporary Atsina has a palatalized bilabial spirant, symbolized by /bʲ/. The shift of pre-Arapahoan /b/ to /bʲ/ in this environment is accordingly at least two hundred years old.

5.24. In *PIPE* Umfreville writes an initial *p* where the modern language has a glottal stop. Initial glottal stop is a stylistic feature of citation forms in Atsina today, alternating with [h] in some repetitions when vowels would otherwise be initial. This was true in Umfreville's day also, when he heard an initial /ʔ/ as [p]. In this same word, the final *n* is probably a misreading by the printer of a hand-written *u*; cf., the modern form.

5.25. The Atsina word for NINE is an innovation in this dialect, found in no other known Arapahoan dialect; it is marked as an innovation because it contains the word for 'ten.' The Umfreville recording of NINE agrees with the contemporary language.

5.3. A number of cognates in the lexicon represent slightly disparate morphological forms. For example, the following Arapaho forms are diminutives, whereas the Atsina forms are not: GIRL, MUSKRAT, PET, WEASEL. Some Atsina forms differ from their Arapaho cognates in having the suffix (PA *-m-) marking possession, see for example LOUSE, NOSTRIL, SISTER, WHEEL. The Arapaho form for GLOVE is in absolute or unpossessed form, and the nearest available Atsina cognate is a dependent noun; the same is probably true of CALF OF LEG. The Atsina form for HORN reflects Proto-Algonkian *wiiwiiši, while the Arapaho form points to *owiiwiiši, which is thus morphologically parallel to GALL, TONGUE, and WIFE (his). A characteristic feature of noun morphology in both Arapaho and Atsina is the frequent use of an extended form of the singular stem as the stem for the plural.¹⁸ In some cases, Arapaho has the extended stem as the singular form with no change for the plural stem, while Atsina has a simple stem in the singular, and the extended form as the plural stem. Examples of this in the lexicon are FAT, LUNG, NECK, ONION. Note that in the case of MOUNTAIN Arapaho may have either stem in the singular, while Atsina has only the extended stem.

5.41. Slightly different lexemes are in use in the two dialects for 'blood.' The Atsina apparently reflects Proto-Algonkian *mečkwaapoowi, 'red liquid' (T).

5.42. The Arapaho-Atsina words for 'corn' may be loanwords, since Blackfoot also has a word obviously related but without correct correspondences. The Blackfoot word is áskaatoopi. Blackfoot /sk/ cannot correspond to Arapaho-Atsina /sk/, since the /k/ in Blackfoot is archaic and Arapaho-Atsina /k/ is secondary. It seems unlikely that Blackfoot has borrowed from Arapaho, or Atsina either, since the Blackfoot word does not have an initial consonant.

5.43. COW in both dialects is a loan from Spanish, reflecting the Spanish plural *vacas*. It was probably not borrowed directly from Spanish, but rather from an intermediary Indian language.¹⁹

5.44. The Atsina word for 'duck' cannot be cognate with either the Arapaho or the reconstructed form. Furthermore, the informant did not recognize a form constructed following the proper correspondences. It is evident, however, that a highly similar historical prototype is involved.

5.45. In Atsina a common allomorph of the inanimate plural morpheme is -no. In EGG the historically correct plural nóóno, 'eggs,' is found, but metanalysis has yielded a new singular, nóó. The historically expected form nóón is found in Arapaho.²⁰

5.46. In SHOE, Atsina has a final /hʔ/ corresponding to Arapaho final /h/. Historically Arapaho is apparently correct. The Atsina word has not been mistakenly transcribed, for the discrepancy was noted in the field and carefully checked.

5.47. In the words for 'tobacco' there is an initial correspondence of Arapaho /s/ to Atsina /c/. This correspondence recurs only in the set DUCK. As in the case of DUCK, the words for 'tobacco' in the two dialects may not be directly cognate.

6.0. The following comparative Arapaho-Atsina lexicon is arranged alphabetically by the English gloss. In the lexicon, the first form given is Arapaho, the second is Atsina. Forms given in parentheses in some instances following the Atsina are late 18th century recordings of the same form taken from the Umfreville list. Following such forms, where they occur, or following the Atsina directly, when early recordings are unavailable, there appear in some instances either Algonkian reconstructions or cognates from other contemporary Algonkian languages. In parentheses following the reconstructions the scholar responsible is identified according to the following key:

(B)	Bloomfield
(G)	Geary
(H)	Hockett
(Ha)	Haas ²¹
(M)	Michelson
(S)	Siebert
(T)	Taylor ²²

ANKLE, an	wonóʔ; wənóʔ.
ANUS, an	béθit; bíctʔ; cf., Menomini nece·h 'my anus, my buttocks.'
ARM, an	bénes; wəníθə; *menexki (M), *neneθki (S).
ARROW	hóθ; ʔác; (utce-ee); *aθwi (S).
ARROWHEAD	waasaaθ (K); wáəθáac; cf., Cheyenne móʔxoce, Fox ašaatihi, Shawnee moʔθalwi 'lead balls for musket'.
ASHES	čəʔíθee; čʔíte; (hidth-er 'gunpowder'); *penkwi- (G).
AUNT, my	nehéi; nehéih; *nesekwihsa (H).
AWL	bei (K); béi 'needle'; (bay); cf., Kickapoo amékoθi.
AXE	hóhʔonóox; ʔáhʔənóas; (oh-en-orce).
BACK, a	wokóoo; wəkəw.
BACKBONE, a	wototóoy; wətatáoyə; cf., Fox otahtakaakwani, Ojibwa nentatteka·wekan.
BADGER	woxʔóooʔ; báhʔoo.
BALL	kohoʔowóo; káhʔəwáə; cf., Shawnee pθeʔkawa.
BARK (rind)	hinóoox; ʔinóas; *walakeeθkwa (S).
BEAR	wóx; wás; *maθkwa (S).
BEAVER	hébes; ʔébis; *ameθkwa (S).
BED	hóoo; ʔəw.
BEE	kohóhʔok; kəhʔéce 'horsefly.'
BELLY, a	wonót; wənót.
BERRY	biina 'fruits' (K); bʔíina 'berries'; *miinali (B).
BIRD	niiʔéhii 'bird of larger species'; niiʔhii; cf., Kickapoo wi·škeno·ha.
BLACK	wooʔóteeyóoʔ; wəʔáteeyə 'it is black'; *mahkateewii (M).
BLANKET	hóú; ʔóow; cf., Cheyenne hóoma.
BLOOD	béʔ; báʔac; *meçkw- (B).
BLUE	čeenéteeyooʔ 'it is green or blue'; čəenéteeyə.

BOAT	θiɪw; cɪw; *čiimaani (M).
BONE, his	hix; ʔiθ; *oθkani (Ha).
BOW	béeteʔ; bēete; (bart); cf., Fox mehtekwa; *meʔt- (M).
BOWSTRING	beetáyook; bēetiyaac; cf., Fox mehtekwaapi.
BOX	čeʔeibes; čʔéibis.
BOY	honóhʔehihiʔ; ʔonóhʔehih; cf., Fox kwiiyesecha, kwiyesecha, Ojibwa kwi·wesse·ns, Miami kwewssa.
BRAIN, a	betééc; bitéac; *-tempi (M).
BRANCH, its	hitéi; ʔitēi; cf., Fox ohtehkoni.
BREAD	čóʔočóó; čáʔcə.
BREAST, a	béθen; bitin; *meθeni (M).
BROTHER, my	nótonóxʔohéb; nótanóhʔəhebʔ.
BROTHER-IN-LAW, my (male speaker)	neyóo; nyóə.
BRUSH (timber)	neeyéič; neeyéecii (plural, no singular elicitable).
BUFFALO	hiíθeinoon; ʔiíteenón; cf., Cheyenne ʔesewóne.
BUFFALO BULL	henéécce; ʔenéécce; cf., Shawnee hayaape 'buck of deer, elk, buffalo.'
BUFFALO COW	bii (K), biihihiʔ; bʔiíh; cf., Cheyenne méhe.
BUG	biísee; bʔiíθee; cf., Cheyenne méskése.
BULLET	kokúyonóθ; kəciyanac; (cuts-i-u-notce); probably 'tube-arrow'
BURN	nonóotééʔ 'it burns'; ninóotee 'it burns.'
BUTTOCK, a	besóho; bisáəhə; cf., Fox nemeškwaaha 'my anus.'
CACTUS	hóheʔoyóóx; ʔəhʔəyóəs.
CALF OF LEG	čiʔiθ; ʔicʔic 'his calf.'
CHEST	hisčóo 'region between the breasts'; ʔiscəə.
CHIEF	néécce; néécce; *naapeewa (B).
CHILD, my	neniisoo; neniíθə; *neniíčyaanehsa (B).
CHIN, a	wotóxkoʔ; wətóhcəʔ; *-taahpixkani (S).
CLAW, a	wóʔox; wóʔas; *-škanša- (Ha).
CLAY	hoʔéet; ʔəʔəəatʔ 'white clay.'
CLOUD	hiinoonóʔet; ʔiínəənóʔitʔ.
COLT	wooʔ 'calf'; wóóʔ 'colt, calf, young quadruped.'
CORN (ear)	béskootéé; biskóəté.
COUGAR	bexóókee; biθáəčce.
COW	wóókeč; wóókáč.
COYOTE	kooʔoh(o)wúhuʔ, kəəʔəhwóh; cf., Cheyenne ʔóʔkome.
CRANE	hitéθoo; ʔitito; cf., Menomini ote·ciah.
CREATURE	česeʔéhii 'quadruped'; číθʔihii.
CROSS	nookóóx; nəəkóəs, 'cross, morning star.'
CROW	hóúú; ʔəə; cf., Cree kaahkaakiw.
CROWN-OF-HEAD	θoontééc; təəntéec.
DANCE	betaati (K); bitáatʔ.
DAUGHTER, my	notóone; nətáəne; *netaana (M).
DAUGHTER-IN-LAW, my	nééséb; nééθibʔ; *neʔθem- (H).
DAY	hiisiʔ; ʔiis; *kiišekwi (M).
DEER	bihʔih; bʔihʔih 'black tail deer'; cf., Menomini mo·s, Ojibwa mo·nse~.
DIRT	hóʔ; ʔáʔ; *axkyi (S).
DOG	héθ; ʔát; (hudth-er); *aθemwa (B).
DOOR	tečénoo; tičínəə 'opening, door.'
DUCK	siísiič; cʔiiskə; *šiíʔšiipa (B).
DWELLING	néyei 'my tepee'; ʔiyee 'his tepee.'
EAR, an	wonotónoʔ; wənətónə.
EGG	nóón; nót (s.), nótónə (pl.); *waawi, *waawali (M).
EIGHT	néeso (otox); nééθəətəs; (nar-swar-tuce); *neʔšwaašika (B).
EIGHTEEN	10+néesootoxuuiniʔ; 10+nééθəətəsiin.
ELEVEN	10+čeeceiniʔ; 10+čééθéini.

ELK	hi(i)wóxuu; ʔiwósii; cf., Menomini ama·skos, Cheyenne móʔe.
ENEMY	čoox 'foe, Comanche'; cós 'Piegan'; *pwaaθa 'Sioux' (M).
EXCREMENT	bée; bée.
FAT	niinén (s.); níin (s.), niiníni (pl.); cf., Fox wiinenwi.
FATHER-IN-LAW, my	nesíθe; nesíte; cf., Menomini nese·neh, Ojibwa nešeniss; *nešiθehsa (T).
FEATHER	bíiyi; bʔíi; cf., Shawnee miikona, Menomini me·kon.
FIFTEEN	10+yooθóniini?; 10+yáatóniini.
FIRE	sítee; ʔisíte; (u-sit-ter); *eškoteewi (B).
FIRE DRILL	ištekuuθa (K); ʔisíteškóotó 'match.'
FISH	nówo?; nówo.
FIVE	yóóθón; yáátón; (yau-tune); *nyaaθanwi (M).
FLY	nóúbee; nóóbée.
FOOD	bíiθib; bʔíicibʔ; cf., *miičiwa 'he eats it' (B).
FORTY	yéiyóó?; yéénóó.
FOUR	yéin; yéen; (ne-an); *nyeewwi (B).
FOURTEEN	10+yéiniini?; 10+yééniini.
FOX	nóuhéhe?; nóohéh; cf., Fox waakoohaki 'foxes.'
GALL, his	hinihič; ʔinihič; cf., Menomini we·sop; *owiisopi (T).
GHOST ₁	θiikana 'ghosts' (K); ciikóna 'ghosts'; cf., *čiipaya (s.) (M).
GHOST ₂	bíitēi; bʔíitēi; cf., Cheyenne mistaaʔe.
GIRL	hiseihihi (K); ʔiθei; cf., Ojibwa ekkwe·sse·ns.
GLOVE	θóóxe; natáθ 'my glove'; cf., Menomini naʔneh 'mitten.'
GOOSE	né?; né?; *nexka (M).
GOPHER	hóni? 'small prairie dog'; ʔóni; *anikwa 'squirrel' (Ha).
GRANDCHILD, my	neisie; níiséh; *noošisema (H).
GRANDFATHER, my	nebisibéhe?; nebisibhə; *nemehsoomehs (M).
GRANDMOTHER, my	néibehe?; níibhe; *noohkomehsa (B).
GRASS	woxú?; wəsi?; cf., Fox maskiskiwi 'grass, reed,' Cheyenne moʔeʔe.
GRASSHOPPER	nihʔoočéihii; nihʔečéii.
GREASE	čebi 'pemmican' (K); čibʔ; *pemi (M).
GREY	neníičeʔee?; niníičʔə 'it is grey'; cf., Shawnee wiipekwa 'it is grey.'
GROUND	biitoʔoowu (K); bʔíitáwo.
GUN	kokúy 'tube, whistle, gun'; káciyə; (cuts-i-er); cf., Shawnee pepikwa 'musical instrument,' Miami papikwani 'gun.'
GUT, his	hiθóóx; ʔitáas; cf., Fox onakeši 'his entrail.'
HAND ₁ , a	béečét; béečítʔ; cf., *nexpetoni (S).
HAND ₂	séʔiθééθoo; séʔteetə 'palm of hand.'
HAT, a	woté?; wətóʔ.
HEAD (HAIR), a	béiθeʔéé; bʔíitʔóó.
HEART, a	bétee; bítee; cf., *wetechi (B).
HEEL, a	betíit; bitʔíit; *metoontani (M).
HILL	čooʔóteyoo?; čəʔótiyaa.
HORN	hiniínis; níinis; (ne-nis 'powder horn'); *wiiwiiši (Ha), cf., also Fox owiiwiini 'his horn.'
HORSE	wóxhoox; wóshəəθ, ʔiwásiihəəθ; (wau-ce-hoth).
HUNDRED	béteetósoo?; bitəatáθoo.
HUSBAND, my	néés; nées; cf., Shawnee hoʔšiwa 'she is married.'
ICE	wóʔow; wóʔəwo; *mexkwamya (S).
KIDNEY, a	betíiθiθ; bitʔíitʔis; cf., Cheyenne hestétate, Ojibwa uto·nekkossuwan 'his kidney.'
KNIFE, a	wóoxé; wəəθə; (warth); cf., Ojibwa mo·kkoma·n.

LEAF	biíciis; b'íiciis; cf., Ojibwa eni·pi·šš.
LEG, a	wóʔooθ; wáʔəe; *mexkaači (M).
LEGGING, a	wóto(o); wátəšh; cf., Ojibwa nenta·ss.
LIP, a	béses; béθis.
LIVER	his; ʔis; cf., *weθkwani (S).
LODGEPOLE	hokóox; ʔəkóəs; cf., Shawnee hapaʔkwe 'roof' (?).
LONG	héeyóóʔ; ʔééyóó 'it is long'; cf., Shawnee kakaanwiiki, 'they are large.'
LOUSE, a	betéi; bitéibʔ; cf., *wetehkomali 'his louse' (B).
LUNG	hiikón (s.), hiikóno (pl.); ʔiik (s.), ʔiikánə (pl.), cf., Menomini nehpaan, Blackfoot ooxpini.
MAN	hinén; ʔinín; *elenyiwa (B).
MANURE	biihíθii (pl.); b'iihíci (pl.).
MARE	hóxehisei; ʔəθhiθee.
MEAT	hoséinoʔ; ʔəθéénə; cf., Cheyenne hoʔéwokote.
MEDICINE MAN	bééteet 'he is powerful'; bééteetʔ 'he is holy'; cf., *meteewa 'shaman' (B).
MILK	beθéneč; bitine.
MINK	noʔéixʔi; nəʔəhʔə, nəʔəhʔe.
MOON	biikóusiis; b'iiikóosiis 'night sun.'
MOTHER, my	néinoo; néinəə.
MOTHER-IN-LAW, my	noʔóó 'mother!'; nəʔəšh 'mother!'; cf., Cree ne·ka·h.
MOUNTAIN	nehéihe; nehéihéh; *nesekwihsehsa (H).
MOUSE	hóheʔ(en); ʔəhʔén.
MOUTH, a	hookúú; ʔəcií; cf., Fox waapikonoowa.
MUSKRAT	bétii; bitʔii; *metooni (M).
	hiixóxohúhuʔ (dim.); ʔiiθəs; cf., Fox ašaškoooha 'little muskrat,' Menomini oʔsas, Ojibwa uššašk.
NAPE, a	wótoʔ; wátəʔ; cf., Cheyenne Mateʔote.
NAVEL	béθ; ʔic 'his navel'; *mečiilwi, *očiilwi (M).
NECK, a	bésonón (s.), bésonóno (pl.); wáθən (s.), wáθənónə (pl.).
NEPHEW, my	néθeʔéθe; nétʔéte; *neθenkwaθehsa (M.)
NIECE, my	néésebi; nééθibʔ; *neʔθem- (H).
NIGHT	téčeʔ; tíčiʔ; *tepeθki (Ha).
NINE	θióʔ; ʔəenheebítəətəs; (an-har-be-twar-tuce).
NOSE, a	béʔis; béʔis; *mexkoši (M).
NOSTRIL, a	béteenii; bitéeniibʔ; *meteelikowi (M).
OLD MAN	behʔéihéhihiʔ (dim.); behʔiihéh; cf., Cheyenne maʔhákese.
OLD WOMAN	bétebihehihiʔ (dim.); bitibʔiihéh; cf., Cheyenne mahtamháa.
OLDER BROTHER, my	néésehʔe; nééθéhʔe; *neʔθ- (B).
OLDER SISTER, my	nébi; níbʔ; *nemihsa (B).
ONE	čééséy; čééθíy; (kar-ci); cf., Ojibwa peešik.
ONION	xóučén (s.), xóučénii (pl.); θəəoč (s.), θəəočinii (pl.), 'skunk turnip.'
OTTER	yéiy; néii; *nekekwa (M).
OWL	bééθei; b'əótéé; cf., Cheyenne mestaaʔe, Shawnee miyaalwe 'hoot owl.'
PAPER	woθonohóe; wəθənhóš 'money.'
PARFLECHE	čeʔeinox 'bag' (K); čʔéinəs 'parfleche.'
PENIS, a	beiθóó; b'iiitóó; *miiθakaayi (M).
PERSON	hineníte; ʔin(i)níte.
PET, my	nótonihiʔ (dim.) 'my horse, my pet'; nótəne 'my animal'; cf., Kickapoo netaya 'my pet,' Ojibwa nentay 'my dog,' Blackfoot nótəʔs 'my animal,' Menomini neti·hseh 'my dog.'
PINE	hisééθ; θéec.
PIPE	hiíčóóó; ʔiicóəə; (pe-chou-on); *oxpwaakana (S).
PLUM	béésib; béəsibʔ 'plum, big berry'; cf., Fox mešimína 'apple.'

THIRTEEN	10+ néésiini?; 10+ néesiin.
THIRTY	néésoo?; nééθoow.
THREE	nééso; nééθ; (nar-ce); *ne?θwi (M).
THROAT, a	béitoo; b?iitáa; *mekontaakani (M).
THUMB	béésθééθoo; bééstéétáa; (see HAND ₂).
THUNDER	box?óóó; bāh?áa.
TICK	hísi?; ?isi; cf., Ojibwa e·sseka·k, Shawnee hošikwa.
TOBACCO	siisowoo; ciiθááwáa; (chees-ou-on); cf., Fox aseemaawa, Ojibwa esse·ma.
TONGUE, his	hiniíθan (M); ?iniíton; *owiiθani (M).
TOOTH, a	béíciθ 'incisor'; b?iicic; *miipiči (M).
TREE	hohóót; ?aháát?; cf., Cheyenne hóóhtete.
TURTLE	be?énoo; b?énoow; *mexkenaahkwa (S).
TWELVE	10+ níisiini?; 10+ níisiin.
TWENTY	niisóó?; níiθoo; cf., Cheyenne nesó?e.
TWINS	niisóóno? (pl.); níiθááa.
TWO	níis(o); níiθ; (neece); *niišwi (B).
UNCLE, my	nési; nís 'maternal uncle'; cf., Fox nešisecha, Ojibwa nešišše ~.
WATER	néč; nic; (nuts 'brandy'); *nepyi (B).
WEASEL	hiseihonéhe? 'weasel, ermine'; θéi; cf., Menomini seko·h, seko·hseh, Shawnee šeko?θa, Ojibwa šenkwass.
WHEEL	hoti? (K); ?ót?iib? 'wheel, wagon.'
WHITE	nónoočóó?; nánáacáa 'it is white'; *waapi- (M).
WIFE, my	netesih?e; nétiθéh?e.
my wife!	betébi; bitib?; (vocative form of OLD WOMAN, q.v.).
his	hiniín; ?iniín; cf., Fox owiiwani.
WING, his	hiθé?; ?ité? 'his wing, his armpit'; *oθenkwi (M).
WINTER	čéč 'year'; čic; *pepoonw- (Ha).
WOMAN	hisei; ?iθee; *eθkweewa (S).
WOOD	bés; bis; *mehši 'firewood' (M).
YELLOW	níihooyóó?; níiháayáa 'it is yellow'; cf., Shawnee weeθaawaaki 'yellow thing.'
YOUNG MAN	honóh?e; ?anáh?e.

NOTES

- ¹ I prefer the designation *Atsina* to *Gros Ventre*, even though the Indians themselves do not know the former word but call themselves in English *Gros Ventres* ([grów-vàn]). Kroeber, Cooper, and Flannery, among other ethnographers, use the name *Gros Ventres*, but Michelson used *Atsina* in his linguistic writings, so there is good precedent for the name in linguistic literature. My field-work on the language consisted of two brief visits, August 8-12, 1960, and January 13-21, 1964. My principal informant, one of the finest I ever worked with, was Fred Gone (?áwááháaciínæet? 'many plumes') of Hays, Montana, a man in his late seventies. Two subsidiary male informants, Steve Bradley and Rufus Warrior, were briefly consulted, as was one female informant, Katy Croft. My field-work was sponsored both by the Survey of California Indian Languages and by the American Council of Learned Societies, to which foundations I am deeply grateful.
- ² I am indebted to Salzmänn for supplying me with many forms not available in the literature and for carefully checking a prepublication version of the included lexicon.
- ³ Kroeber, 1916, p. 75-76.
- ⁴ Taped materials, approximately 1,500 feet recorded at 3¾, consist of a lexicon of nouns, pronouns, and some verbal forms. One short text was also collected from Gone, as well as two long historical narratives from Rufus Warrior. Three copies of this tape are in existence at the present time. I have the original; one copy is in the tape archives of the Department of Linguistics, University of California, Berkeley, California; and one copy is in the possession of Dr. Zdeněk Salzmänn.
- ⁵ The *Atsina* list, together with lists for Blackfoot, Swampy Cree, Assiniboiné, and Sarcee, appears on page 202 of Umfreville's book. The *Atsina* at that time were called *Falls Indians* by their surrounding Indian neighbours (Crees, Ojibwas, Assineboines) because the territory they occupied was in the vicinity of the rapids of the South Saskatchewan River. Umfreville

realized that the Atsina were an offshoot of some more distant nation as yet undiscovered; he commented on the difficulty of the language, which none of the men of the company spoke. Communication with the Atsina was in the Blackfoot language, which most of the men of the tribe spoke. In later historical times the Atsina were politically allied with the Blackfeet, and Blackfoot continued to be their medium of diplomatic communication; Morgan, for instance, obtained his Atsina (*Ahahnelin*) schedule from a Blackfoot-speaking Atsina woman.

- ⁶ A word is necessary concerning my views on presently available reconstructions and their validity for Arapaho and Atsina. I wish to make it clear that my work on these Arapahoan dialects, Cheyenne and Blackfoot, has convinced me that Bloomfield is right in his assertion ("Algonquian," paragraph 2) that his reconstructions "in the main, fit all the languages and can accordingly be viewed as Proto-Algonquian." I must admit that I am *assuming* that reconstructions for which the Plains languages did not furnish evidence will fit as well other Algonkian languages (also not utilized by Bloomfield in his reconstruction) with which I am not familiar. For this reason I have disregarded such labels as PCA and PCEA. When I cite reconstructions which appear to me to be wholly cognate with the Arapahoan forms, I give the reconstruction without comment; when differences in morphological form are apparent, I precede the reconstruction with 'cf.' By this I mean that between the reconstruction and the Arapahoan forms I wish to imply no total priority of the reconstruction, while in the former case I do assume virtual total priority of the reconstruction (allowing for minor reshaping).
- ⁷ The Arapaho phoneme inventory is based on Salzmänn, 1956.
- ⁸ For the present the Atsina phonemicization is tentative; this is mainly true in the area of supersegmentals, although phono-tactics also require further refinement. Otherwise, mistakes may be made because of insufficient acquaintance with individual forms, rather than because a phonemic contrast has been missed.
- ⁹ Kroeber, 1916, p. 78-79.
- ¹⁰ Gone pronounced [h] in some repetitions instead of [ʔ], but [ʔ] was far commoner. I collected no examples with contrast and none with an initial vowel.
- ¹¹ Michelson, 1935, p. 136-137.
- ¹² Op. cit., p. 147.
- ¹³ Op. cit., p. 136-137.
- ¹⁴ Op. cit., p. 138.
- ¹⁵ Note that this correspondence is suggestive of the alternation discussed by Hockett in "Central Algonquian /t/ and /c/." The Proto-Algonkian alternation of */t/ and */č/, virtually totally predictable, as shown by Hockett, survives in Arapaho-Atsina in two different and interesting ways. Where synchronic evidence of shift of */t/ to */č/ was available to speakers of the language ancestral to both Arapaho and Atsina (that is, when */t/ and */č/ alternated at a morpheme boundary), the alternation was removed by restoration of */t/ in all occurrences of the alternation. In Atsina this */t/ was subsequently palatalized, repeating in effect the earlier pattern. The new palatalization has been rendered phonemic by the loss of final vowels and by the appearance of a new, non-palatalizing /i/. When the Proto-Algonkian shift of */t/ to */č/ was rendered non-reversible by morpheme-medial occurrence, the two languages have /θ/ (Arapaho) and /c/ (Atsina), see section 3.25.
- ¹⁶ Alternatively, one may assume that /č/ is the regular reflex of Pre-Arapahoan */k/ before a front vowel, with Atsina later splitting */č/ into two phonemes; /c/ before /i/, /č/ before /e/. It is not unlikely that such an *allophonic* pattern might have existed, becoming *phonemic* through such phenomena as the loss of final vowels, vowel assimilation between contiguous syllables, and the shift of */e/ in some positions to /i/.
- ¹⁷ Op. cit., p. 138.
- ¹⁸ See Salzmänn's discussion of Arapaho noun morphology, especially "Arapaho V" and "Arapaho VI"; Dr. Salzmänn kindly provided me with prepublication copies of these articles.
- ¹⁹ Parallel etymological problems occur for Indian borrowings of this Spanish etymon in certain Pueblo languages (see Wick R. Miller, "Spanish Loanwords in Acoma: II," *Int. J. of Am. Linguistics*, vol. 26, p. 41-49. "cow" is discussed at 4.2, p. 42.
- ²⁰ See Michelson's remarks regarding unusual developments of this etymon in other Algonkian languages, op. cit., p. 134.
- ²¹ Haas, Mary R.
Unpub. field notes on Kickapoo, recorded in 1939.
Unpub. reconstructions for "bone," "horn," and "night."
- ²² Taylor, Allan R.
Unpub. field notes on: Atsina, collected in 1960 and 1964;
Cree, collected in 1960;
Blackfoot, collected in 1960, 1961, and 1964.
Some unpublished Cheyenne forms were kindly furnished by Donald Frantz.

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SOME ASPECTS OF ARAPAHO MORPHOLOGY*

BY ZDENĚK SALZMANN

0. Survey of phonology
1. Survey of the noun inflection
 - 1.1. Gender
 - 1.2. Obviative and plural of animate nouns
 - 1.3. Plural of inanimate nouns
 - 1.4. Vocative forms
 - 1.5. Dependency
 - 1.6. Possession
 - 1.7. Locative and diminutive forms
 - 1.8. Morphemic sequences

This paper, following a brief survey of phonology, treats Arapaho noun inflection with particular attention to the intricate morphophonemics of obviation and pluralization. Inasmuch as a detailed and extensively documented description of Arapaho morphology is in preparation, examples in this paper have been kept to a minimum.

0. Northern Arapaho utterances typically consist of a succession of phrases delimited by pauses. The phrases include one or more accentual contours whose extent is determined by the style of delivery: utterances of formal nature are broken up by junctures into contours closely corresponding to words; informal or spontaneous utterances are characterized by more extensive contours and by sandhi forms in certain instances where junctures occur in the formal style.

There are twelve consonant phonemes in Arapaho: five stops (including one affricate) *b*, *t*, *č*, *k*, and *ʔ*; four spirants *θ*, *s*, *x*, and *h*; one nasal *n*; and *w* and *y*.

<i>b</i>	<i>t</i>	<i>č</i>	<i>k</i>	<i>ʔ</i>
	<i>θ</i>	<i>s</i>	<i>x</i>	<i>h</i>
	<i>n</i>			
<i>w</i>		<i>y</i>		

All these consonants occur singly in the initial prevocalic position, between vowels, and in the final position after vowels. Consonant clusters, which consist of two members, are all noninitial. Some of the medial clusters are found within morphemes, others arise across morpheme boundaries, and still others result when short contours are consolidated into longer ones.

Attested medial consonant clusters are listed below; the consonant which precedes the parentheses clusters as the first member with those consonants listed parenthetically:

b(k)
t(b, t, č, k, θ, s, h, n, w)
č(t, č, k, x, n)
k(b, t, č, k, ʔ, θ, s, x, h)
ʔ(t, č, k, s, n, w)
θ(b, t, č, k, θ, x, h, n)
s(b, t, č, k, θ, s, x, h, n, w)
x(b, t, č, k, ʔ, θ, s, x, h, n, w)
h(b, t, ʔ, h, n, w, y)
n(b, t, č, k, θ, s, h, n)
w(b, t, č, k, θ, s, x, n)

Among the above eighty-two medial clusters t, č, k, θ, s, x, h, and n occur geminated; y does not occur as the first member of any cluster; and x is followed by all consonants except y.

Only three final consonant clusters have been attested, consisting of two members each: -x(t, k) and -hʔ.

The vowel phonemes, which are voiced and oral, are four:

i	u
e	o

Each associates with one of two prosodemes—high level pitch (marked by an acute accent) and low level pitch (unmarked)—the former correlated with greater loudness.

Vowels occur singly and in both identical and nonidentical clusters. They are found only medially and finally.

Dyadic clusters of like vowels attested for the medial position are ee, é(e, é), ii, í(i, í), oo, ó(o, ó), uu, and ú(u, ú); those recorded in the final position are e(e, é), é(e, é), i(i, í), í(i, í), o(o, ó), ó(o, ó), u(u, ú), and ú(u, ú).

Triadic clusters of like vowels attested medially are é(ee, eé, ée), íi(i, í), and ó(oo, oó); those recorded finally are eeé, ííí, ííí, ooó, ó(oo, oó), and úúú.

Clusters of unlike vowels are also dyadic and triadic but do not involve more than two different phonemes. Dyadic clusters of unlike vowels attested medially are e(i, í, o), é(i, í), í(o, ó), o(e, u, ú), and ó(e, é, u, ú); those recorded in the final position are e(i, í), é(i, í), í(e, o), o(e, é, u), ó(e, í, u, ú), uo, and úó.

Triadic clusters of unlike vowels attested medially are eii, o(éé, oe, uu, úú), and ó(ee, óú, uo, uu, úu); those recorded finally are é(ii, íí), oee, ó(ee, uu, úú), and úúó.

Consonant-vowel sequences that have not been attested are few: xi, bu, ču, θu, su, and yu. The sequence wi was obtained only in an expressive particle. All the possible vowel-consonant sequences occur.

The most common type of external morphophonemic change is the loss of h in instances where a consonant cluster terminating in h would otherwise be the result of the fusion of two contours. Two identical consonants brought together by the fusing of two contours are heard as a long (i.e., double) consonant or as a single short consonant in extra fast delivery.

1.1. Arapaho noun stems (most of which are assumed to be underlaid by stem-generating roots) are SIMPLE (néč *water*) or COMPOUND (beθéneč *milk*).

Nouns fall into two gender classes: ANIMATE, which in general designate people, animals, supernatural beings, some few body parts and plants, and a few other referents contrary to our expectation; and INANIMATE. Formally, the animate nouns contrast with the inanimate by associating both in the singular and in the plural with the morpheme marking the obviative.

1.2. The absolute form of an animate noun is the uninflected PROXIMATE singular form. It denotes which of two nominal referents has been mentioned first, which of the two is nearer, or which acts as the principal character of a discourse or narrative. The form marked for the OBVIATIVE designates the subsidiary referent of the two. Rarely, one may hear in singular constructions a secondary obviative, which denotes a referent subsidiary to one already marked by the obviative.

According to the formal marking of the PLURAL and of the OBVIATIVE, animate nouns may be divided into two subclasses, each of which in turn subdivides further. The classification of the nouns below stops short of detailing prosodemic differences; a sample noun for each group is given parenthetically with forms listed in the following order: proximate singular, obviative singular, proximate plural, and obviative plural.

In Subclass I, the shape of the plural is -o?, and the morpheme alternant of the obviative in the obviative plural construction has a subtractive force (plural -o? becomes reduced to -o).

In Division 1 of this subclass, the shape of the obviative in singular constructions is zero (∅). This division comprises three sets. In Set a, the inflectional suffixes follow the absolute form of the stem (bétson *elbow*, bétson-∅, bétson-o?, bétson-o). In Set b, the stem-final -b > -w and the stem-final -V > -Vw go before the morphemes marking the obviative and the plural (bé?ib *vein*, bé?iw-∅, be?iw-o?, be?iw-o). In Set c, the stems reshape before the morphemes marking the obviative and the plural by the addition of the increment -([C]V)n as follows: in Subset c₁ by the addition of -n (henééčee *buffalo*, henééčeen-∅, henééčeen-ó?, henééčeen-ó); in Subset c₂ by -un (hokóóx *tepee pole*, hokóóxun-∅, hokóóxun-o?, hokóóxun-o); in Subset c₃ by -on (wóxos *shin*, wóxosón-∅, wóxosón-o?, wóxosón-o); in Subset c₄ by -in (hohóót *tree*, hohóótin-∅, hohóótin-ó?, hohóótin-ó); and in Subset c₅ by -Cin (hóóxei *wolf*, hóoxéihin-∅, hóoxéihin-o?, hóoxéihin-o).

In Division 2, the shape of the obviative in singular constructions is other than zero. Four sets of this division are distinguished. In Set a, the obviative has the shape of -n and follows the absolute form of the stem; in plural constructions the stems reshape (tí?iihii *killdeer*, tí?iihii-n, tí?iihíih-o?, tí?iihíih-o). In Set b, the shape of the obviative is -in; in Subset b₁, inflectional suffixes follow the absolute form of the stem (hinén *man*, hinén-in, hinén-o?, hinén-o); in Subset b₂, the stems reshape in plural constructions (či?iθ *calf of the leg*, či?iθ-in, či?iθn-o?, či?iθn-o). In Set c, the obviative has the shape of -on and follows the absolute form of the stem; in plural constructions the stems reshape (wonóx *skin*, wonóx-on, wonóxn-o?, wonóxn-o). Set d, which is characterized by the obviative in the shape of -o, comprises three subsets: Subset d₁, in which the stems reshape in plural constructions (čéčínóhuu *chicken hawk*, čéčínohúú-o, čéčínohúúh-o?, čéčínohúúh-o); Subset d₂, in which the stems reshape in obviative singular and in plural constructions (nó?ouh?ú *squirrel*, nó?ouh?-ó, nó?ouh?-ó?, nó?ouh?-ó); and Subset

d₃, in which the stems reshape twice, both for the obviative singular and the plural constructions (nisíče *antelope*, nisíč-o, nisíčoh-o?, nisíčoh-o).

In Subclass II, the shape of the plural is other than -o?, and the morpheme alternant of the obviative in the obviative plural construction is zero (ø).

In Division 1 of this subclass, the morpheme alternants of the obviative in singular constructions are phonemically distinct from the shapes of the plural morpheme. The division comprises two sets. In Set a, the obviative has the shape of zero in singular constructions and follows the absolute form of the stem. In Subset a₁, the plural has the shape of -ii and follows the absolute form of the stem (xóučén *onion*, xóučén-ø, xóučén-ii, xóučén-ii-ø); in Subset a₂, the plural has the shape of -uu and follows a reshaped form of the stem (hookúú *mouse*, hookúú-ø, hookúúh-uu, hookúúh-uu-ø). In Set b, the obviative in singular constructions follows the absolute form of the stem in the shape of -ii. The morpheme alternant of the plural is -uu and follows a reshaped form of the noun stem (sísiic *duck*, sísiic-ii, sísiikú?-uu, sísiikú?-uu-ø).

In Division 2 of this subclass, the morpheme alternants of the obviative in singular constructions are phonemically identical with the shapes of the plural. This division comprises four sets. In Set a, following a reshaped form of the stem, -u marks both the obviative (singular) and the plural (nih[?]óóθoo *spider* or *white man*, nih[?]óóθo-u, nih[?]óóθo-u, nih[?]óóθo-u-ø). In Set b, following a reshaped form of the stem, -i marks both the obviative (singular) and the plural (hóte[?] *sheep*, hóte-i, hóte-i, hóte-i-ø). In Set c, the shape of the obviative in singular constructions and of the plural is -uu; in Subset c₁, inflectional suffixes follow the absolute form of the stem (wóx *bear*, wóx-uu, wóx-uu, wóx-uu-ø), and in Subset c₂ inflectional suffixes follow a reshaped form of the stem (seeníwoo *lizard*, seeníw-uú, seeníw-uú, seeníw-uú-ø). In Set d, the shape of the obviative in singular constructions and of the plural is -ii; in Subset d₁, inflectional suffixes follow the absolute form of the stem (hébes *beaver*, hébes-ii, hébes-ii, hébes-ii-ø), and in Subset d₂ inflectional suffixes follow a reshaped form of the stem (hééni[?] *ant*, héén-ii, héén-ii, héén-ii-ø).

For a number of the subdivisions listed above, memberships are not formally defined, and in several cases they are quite limited in number.

Very few noun stems (only two attested—bés *log* and né[?] *goose*) overlap the two subclasses, and several are defective in that they do not produce plural forms (néb *fish* and hinéni *moose*).

In the case of the secondary obviative, the morpheme marking the obviative is repeated twice in succession. In the rare examples recorded, the second consecutive occurrence of this morpheme is limited to the shape -in (nééčee nonoohówoot núhú[?]inénin hiníín-ø-in *the chief sees this man's wife*).

1.3. Inanimate nouns regularly distinguish between singular and plural forms. The absolute form of an inanimate noun is the uninflected singular form. According to the shapes of the morpheme marking the plural, inanimate nouns may be divided into two subclasses.

Subclass I comprises those stems which are pluralized by -o. Four divisions of this subclass are distinguished. In Division 1, the morpheme marking the plural follows the absolute form of the stem (béθen *breast*, béθen-o). The nouns of Division 2 reshape the absolute form of their stems before suffixing the plural by the addition of the increment -([C]V)n as follows: in Set a, by the addition of -n (béíθe[?]éé *head*, béíθe[?]één-o); in Set b, by -en (woté[?] *hat*, woté[?]en-o); in Set c,

by -un (woxú? *grass*, woxú?un-o); in Set d, by -on (wonót *belly*, wonóton-o); and in Set e, by -in (niibóót *song*, niibóótin-ó).

Nouns of Division 3 are characterized by the change in their stem-final consonant before the plural -o. According to the type of this nonautomatic alternation, six sets are recognized: Set a, with -č > -k (betéč *brain*, betéek-o); Set b, with -b > -w (bíib *food*, bíiw-o *foodstuffs*); Set c, with -s > -x (bénes *arm*, benéx-o); Set d, with -s > -θ (bé?is *nose*, be?iθ-ó); Set e, with -θ > -t (wó?ooθ *leg*, wo?óót-o); and Set f, with -x > -θ (hóh?onóóx *ax*, hóh?onóóθ-o).

Nouns which reshape their stems uniquely before the -o of the plural morpheme constitute Division 4 (béteeníi *nostril*, béteeníiw-o ~ [more recent variant] béteeníiθ-o; bétée *heart*, betóóh-o; θíihoho *forefinger*, θíihoon-o; and so on).

Subclass II comprises those stems which suffix the plural in a shape other than -o. Two divisions of this subclass are distinguished. Nouns of Division 1 add the plural morpheme alternant -uu in Set a to the absolute form of their stems (hóno? *sky*, hóno?-uu) and in Set b to a reshaped form of their stems (wonotóno? *ear*, wonotónó-uu). In Division 2, the suffix -ii marks the plural. In Set a, this suffix follows the absolute form of the stem (hóθ *arrow*, hóθ-ii). In Set b, the stems undergo a change as follows: in Subset b₁, by the addition of the increment -in (čéč *year* or *winter*, čéč-in-ii); and in Subset b₂, by the dropping of the stem-final -? (béete? *bow*, bété-ii).

1.4. A limited number of nouns, among them the majority of kinship terms and several words for common animals, have special VOCATIVE forms in the singular.¹ These forms are highly irregular. The proximate singular and plural forms serve to indicate direct address for all other nouns. In most of the terms of relationship the vocative, which is suffixed, is associated with the prefix marking the first person possessive (nii?éhii *bird*, nii?ehíi-n [voc.]; n-ési *my mother's brother*, n-ésih-óó; n-otóóne *my daughter*, n-otóó[ne- 'abbreviative' alternant of the morpheme marking the vocative]; and so on).

1.5. Arapaho nouns are either DEPENDENT or NONDEPENDENT. Dependent nouns seem to belong to an old lexical stratum and probably do not exceed two hundred; they denote, except for a few instances (betéi *louse* or *flea*, netéi *my louse*), most of the body parts and kinship relationships.

Nondependent nouns occur either with a specific personal possessor prefix or in their absolute form (wóoxé *knife*, no-wóoxé *my knife*); dependent nouns occur exclusively possessed, whether prefixed by a morpheme marking a specific personal possessor or an indefinite one (b-étee [someone's] *heart*, n-étee *my heart*, and so on).

1.6. The morphemes marking possession are the following: FIRST PERSON POSSESSIVE: n-~(ne-~né-~)(no-~nó-); SECOND PERSON POSSESSIVE: h-~(he-~hé-~)(ho-~hó-); THIRD PERSON POSSESSIVE: (hi-~hí-~)(hii-~híi-~)(hiníi-~hiníi-~); and INDEFINITE PERSONAL POSSESSOR: b-~w- (w-onót [someone's] *belly*, n-onót *my belly*, h-onót *your* (s.) *belly*, hi-nót *his belly*; b-eiθón *tongue*, n-eiθón *my tongue*; hiníi-wóho?-ø *his grandmother* [obviative]; and so on).

As opposed to the great majority of inanimate nouns, animate nouns commonly reshape their stems when possessed (hébes *beaver*, ne-tébesiib *my beaver*).

Pluralization of possessed inanimate nouns is generally regular. Animate nouns for the most part add the plural in the shape of -o? to those stem alternants which are employed in the possessed obviative singular constructions

(héθ *dog*, ne-téθebíiw-o? *my dogs*, hi-téθebíiw-o[?]- 'subtractive'] *his dogs* [obviative]).

The specific personal possessors are pluralized by the PERSONAL POSSESSOR PLURALIZER morpheme, -ínoo ~ -únoo, suffixed to a lengthened form of the associated stem (he-téθebíib-ínoo *your* [pl.] *dog[s]*).

There is a distinction in the plural between the inclusive first person possessive—subsuming the speaker, the addressee, and perhaps others—and the exclusive first person possessive—subsuming the speaker and others, but not the addressee. The inclusion of the addressee is expressed by the INCLUSIVIZER morpheme, which follows the personal possessor pluralizer. It has a single morpheme alternant which has the effect of reducing the personal possessor pluralizer from -Vnoo to -Vn (h-éíθe?één-in[oo]- 'subtractive'] *our head(s), including yours*, or perhaps *your head(s), as well as ours*).

The INANIMATE morpheme marks the inanimate third person possessor and follows the lengthened form of the associated noun stem in the shapes of -iinoo? ~ -uunoo? among others.

The inanimate is made plural by the INANIMATE PLURALIZER morpheme occurring in the single alternant -u (híi-teθebíib-iinoo? *its dog[s]*, hii-wóókečíib-iinóu?-u *their* [inan.] *cow[s]*).

1.7. The morpheme marking the LOCATIVE has the alternants of -e? ~ -i? ~ -ii? ~ -u? (h-okóób-e? *on your back*, hiséeθ-í? *on the pine*, hi-téθebíib-e? *on his dog* [obviative unmarked], and so on).

The morpheme marking the DIMINUTIVE occurs in several shapes, corresponding to the formula -(h)VhV?, where the two vowels, which are identical, may be i, e, or u (hísei-hihi? *girl* [= *little woman*], b-étee-héhe? *little heart*). In obviative and plural constructions, the diminutive suffix assumes a modified form (honóh?e-híh-o? *boy* [obv.], b-étoo-hóh-?o *little hearts*).

1.8. The following are general statements concerning the morphemic sequences of noun constructions in Arapaho.

No morphemic sequences involving inanimate nouns are terminated by morphemes marking the obviative or vocative.

The sequence-terminal inclusivizer is always preceded by the personal possessor pluralizer, with the associated noun stem following the second person possessive prefix; this partially dependent and noncontiguous morphemic sequence marks the inclusive first person plural of possessed nouns.

As regards the relative position of suffixes in sequences associated with stems of animate nouns, morphemes marking the obviative, vocative, (third person possessor) inanimate pluralizer, inclusivizer, and locative are ultimate within sequences; the plural is sequence-penultimate before the obviative, otherwise sequence-ultimate; the personal possessor pluralizer is sequence-penultimate before the inclusivizer, otherwise sequence-ultimate; the diminutive is contiguous to the noun stem.

NOTES

* Section 0 is a brief revised summary of two of my earlier papers, "Arapaho I: Phonology" and "Arapaho IV: Interphonemic Specification," published respectively in the *International Journal of American Linguistics* 22: 49-56 (1956) and 27: 151-5 (1961). Section 1 is a description of the noun inflection, as yet unpublished, but to appear in *IJAL* in considerable detail as "Arapaho V, VI: Noun."

Among the several other papers I have published on the Arapaho, the following contain linguistic material: "Contrastive Field Experience with Language and Values of the Arapaho," "Arapaho II: Texts," and "Arapaho III: Additional Texts," published respectively in *IJAL* 17: 98-101 (1951), 22: 151-8 (1956), and 22: 266-72 (1956); "Arapaho Kinship Terms and Two Related Ethnolinguistic Observations" and "Two Brief Contributions Toward Arapaho Linguistic History," published respectively in *Anthropological Linguistics* 1: 9:6-10 (1959) and 2:7: 39-48 (1960); and "Concerning the Assumed l-Sound in Arapaho," *Plains Anthropologist* 6: 270-1 (No. 14, November 1961).

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¹ For kinship terms and their vocative forms, see my article "Arapaho Kinship Terms and Two Related Ethnolinguistic Observations."

ON THE INFLECTION OF TRANSITIVE ANIMATE VERBS IN ARAPAHO*

BY ZDENĚK SALZMANN

Arapaho verb stems fall into two main classes—transitive and intransitive. The transitives are inflected for both subject and object, the intransitives for subject only. Each class makes formal distinctions as regards gender. The inflection of transitive animate verbs marks an animate subject and an animate object, whereas transitive inanimate verbs are conjugated for an animate subject and an inanimate object.

The morphology of the transitive animate verb is well known to be particularly intricate for Algonquian languages in general and Arapaho in particular.¹ This paper is a brief contribution toward better understanding of this aspect of Algonquian grammar.

Arapaho verb forms exemplifying the many possible combinations of the persons marking an animate subject (actor) with the persons marking an animate object (goal) in the present tense of the affirmative submode are tabulated below. The set was checked with several informants, and the individual forms were compared with the many corresponding forms in my field notes.²

The verb used here as an example means *strike* or *hit*; accordingly, the English glosses would read *I strike you, you strike me, he strikes us*, and so on. It may be worth mentioning here that in the course of translating texts and eliciting forms my informants occasionally rendered transitive animate Arapaho constructions in passive constructions in English, but they invariably translated English constructions of the type *I am struck by you, you are struck by me* by the transitive active forms which are listed in the table and correspond to the English glosses *you strike me, I strike you*, and so on.

The numerical headings of the table below refer respectively to the first, second, and third person subject in the singular (1, 2, and 3) and in the plural (*I*, 2, and 3). These same numbers followed by a prime—1', 2', 3', and *I*', 2', 3'—denote the three persons in the singular and in the plural when acting as objects.

	1'	2'	3'	<i>I</i> '	2'	3'
1		tóó'obéθen	tóó'owó?		tóó'óbeθénee	tóó'owúu
2	tóó'owún		tóó'owót	tóó'obéi'écén		tóó'owótii
3	tóó'obéinóó	tóó'obéin	{ tóó'obéit too'ówoot	tóó'obéinó? [incl.]	tóó'obéinéé	tóó'obéiθi?
<i>I</i>		too'óbeen	{ tóó'obéét tóó'owóóno? [incl.]		too'óbeenee	{ tóó'obécθi? tóó'owóóno? [incl.]
2	tóó'owúnee		tóó'owóónee	tóó'obéi'eenée		tóó'owóónee
3	tóó'owúθi?	tóó'obéinónii	tóó'owóóθi?	{ tóó'obéi'écéθi? tóó'obéinó? [incl.]	tóó'obéinéé	tóó'owóóθi?

The inclusive forms of the first person plural are designated as such; the rest of the first person plural forms are to be construed as exclusive by definition. Reflexive forms, characterized by a special derivational morpheme (reflexivizer) occurring between the verb stem and the suffixes marking person, are not listed among the tabulated forms and are discussed elsewhere.

The verb forms tabulated above are not readily analysable in terms of regularly recurring affixes which would underlie the entire set and reflect its basic patterning by means of their definite grammatical meaning and fixed relative position in a morphemic sequence. In the analysis here employed, identifiable morphemic features are assigned to a number of paradigms, each comprehending a paradigmatic constant and several paradigmatic variables, and the insight into the underlying arrangement of the verb inflection gained from this procedure is next applied to resolving the obscure morphemic sequences of the set. The paradigms which follow are referred to the forms listed in the table.

- (i) Paradigm consisting of forms tabulated under 1-2' and 1-2'—
paradigmatic constant refers to subject, viz., -éθe- ~ -eθé- (1);
paradigmatic variables denote objects, viz., -n (2') and -n-ee (2').
- (ii) Paradigm 1-2', 1-3', 1-2', and 1-3'—
paradigmatic constant: subject, viz., -ee- ~ -éé- ~ -ée- (1);
paradigmatic variables: objects, viz., -n (2'), -t (3'), -n-ee (2'), and -θi? (3').
- (iii) Paradigm 3-1', 3-2', 3-3', 3-3', and 3-2'—
paradigmatic constant: subject, viz., -éi- ~ -éi- (3) [-éi-nónii- (3)];
paradigmatic variables: objects, viz., -nóó (1'), -n ~ -ø (2'), -t (3'), and -θi? (3').
- (iv) Paradigm 3-1' incl., 3-2', 3-1' incl., and 3-2'—
paradigmatic constant: subject, viz., -éi- (3 and also 3);
paradigmatic variables: objects, viz., -nó-? (1' incl.) and -n-éé (2').
- (v) Paradigm 1-3' incl., 2-3', 3-3', 1-3' incl., 2-3', and 3-3'—
paradigmatic constant: object, viz., -óó- (3' and also 3');
paradigmatic variables: subjects, viz., -no-? (1 incl.), -n-ee (2), and -θi? (3).
- (vi) Paradigm 2-1', 2-1', and 3-1'—
paradigmatic constant: object, viz., -ú- (1');
paradigmatic variables: subjects, viz., -n (2), -n-ee (2), and -θi? (3).
- (vii) Paradigm 2-1', 2-1', and 3-1'—
paradigmatic constant: object, viz., -éi?éé- ~ -éi?ee- (1');
paradigmatic variables: subjects, viz., -n (2), -n-ee (2), and -θi? (3).

An examination of the seven paradigms established thus far shows a great deal of uniformity in the affixes marking the paradigmatic variables, and it also

reveals the fact that the morpheme marking the second person, whether acting as a subject or as an object, never occurs in the position regularly held by a paradigmatic constant, namely, immediately following the verb stem. Using these underlying features of the paradigms as clues, the remaining verb forms (1-3', 1-3', 2-3', 2-3', and 3-3') are analysed as follows:

(viii) Paradigm 2-3', 2-3', and 3-3'—

paradigmatic constant: object, viz., -ót-~ -oo- (3') [-ót-ii- (3')];

paradigmatic variables: subjects, viz., -ø (2) and -t (3).

Supplementing Paradigm (i), forms tabulated under 1-3' and 1-3'—

paradigmatic constant: subject, viz., -ø- (1);

paradigmatic variables: objects, viz., -ó? (3') and -úu (3').

The forms of the transitive animate verb tabulated above are now rewritten morpheme by morpheme. The symbol Vt stands for the transitive verb stem, occurring in two major morphemic alternants: *tóó?ob-~tóó?ób-~too?ób-* before a morpheme with an initial e or i, and *tóó?ow-~too?ów-* before a morpheme with an initial o or u, whether or not a morphemic zero intervenes.

	1'	2'	3'	1'	2'	3'
1		Vt-éθe-n	Vt-ø-ó?		Vt-eθé-n-ee	Vt-ø-úu
2	Vt-ú-n		Vt-ót-ø	Vt-éi?éé-n		Vt-ót-ii-ø
3	Vt-éi-nóó	Vt-éi-n	{ Vt-éi-t Vt-oo-t	Vt-éi-nó-?	Vt-éi-n-éé	Vt-éi-θi?
1		Vt-ee-n	{ Vt-éé-t Vt-óó-no-?		Vt-ee-n-ee	{ Vt-éé-θi? Vt-óó-no-?
2	Vt-ú-n-ee		Vt-óó-n-ee	Vt-éi?ee-n-ee		Vt-óó-n-ee
3	Vt-ú-θi?	Vt-éi-nónii-ø	Vt-óó-θi?	{ Vt-éi?éé-θi? Vt-éi-nó-?	Vt-éi-n-éé	Vt-óó-θi?

The minor morphemes associated with the inflection of the transitive animate verb analysed above are now listed.

The decade numbered '10' comprises those suffixes which function as paradigmatic constants and occur immediately following the verb stem. The definition of the morphemic meaning of these suffixes includes a specification of their part in the marking of the actor-goal reference. The suffixes are—

(11) first person singular subject: (-eθé-~ -éθe-) [occurring before 72]~ -ø- [occurring elsewhere];

(12) first person singular object: -ú-;

(13) third person singular subject: -éi-~ -éi-;

(14) third person singular object: -oo- [before 73]~ -ót- [occurring elsewhere];

(15) first person plural subject (exclusive): -ee-~ -éé-~ -éé-;

(16) first person plural object (exclusive): -éi?éé-~ -éi?ee-;

(17) third person subject: -éi-; and

(18) third person object: -óó-.

The morpheme which causes suffixes 13 and 14 to assume a plural reference is numbered 31 and termed the pluralizer of the third person singular subject and object forms; its shapes are -nónii- [following 13] ~ -ii- [following 14].

The decade numbered '70' comprises those suffixes which function as paradigmatic variables. Their part in the marking of the actor-goal reference is complementary to that of suffixes assigned to Decade 10. The morphemic members of Decade 70 are—

- (71) first person singular: -nóó;
- (72) second person singular: -o [following 14 and 31] ~ -n(-) [occurring elsewhere];
- (73) third person singular: -ó? [following 11] ~ -t [occurring elsewhere];
- (74) first person plural (exclusive): -?; and
- (75) third person plural: -úu [following 11] ~ (-θi? ~ -θi?) [occurring elsewhere].

The remaining two morphemes are (61), the inclusivizer of the first person plural, occurring in two allomorphs, -no- ~ -nó-, both before 74; and (81) the pluralizer of the second person singular [i.e., of 72], occurring in two alternant shapes, -ee ~ -éé.

The analysis presented above finds support in the rest of the Arapaho verb morphology. Thus, we have seen that in the affirmative submode suffix 72, functioning as a paradigmatic variable and marking the second person singular, actor or goal, is set apart structurally from the other personal markers of the actor-goal reference by having no complement among the suffixes of Decade 10. In the nonaffirmative submode, it is likewise the morpheme marking the second person singular, actor or goal, which is structurally differentiated: alone among the personal markers it occurs exclusively as a prefix.

Most of the morpheme alternants of the suffixes of Decade 70, as well as of morphemes numbered 61 and 81, also function as the person-marking and associated suffixes in the inflection of animate intransitive verbs.

NOTES

* For pertinent references concerning the Arapaho language see my paper "Some Aspects of Arapaho Morphology."

¹ H. A. Gleason, Jr., in *An Introduction to Descriptive Linguistics* (New York, 1955), comments on the Cree inflection of transitive animate verbs (p. 117 and 119): "These paradigms are formidable. . . . The Cree endings cannot be neatly dissected into morphemes. . . . Certainly no simplification can be achieved. . . . Unfortunately . . . most of the recurrent resemblances . . . show such complications as to defy analysis. The paradigms as they stand are unanalyzable."

A. L. Kroeber, in his "Arapaho Dialects," *University of California Publications in American Archaeology and Ethnology* 12: 71-138 (Berkeley, 1916), comments on the inflection of transitive animate verbs as follows (p. 111): "The endings themselves cannot be analyzed in all cases into regularly recurring subjective and objective constituents. . . ."

The author of a recently completed manuscript, as yet unpublished, states in his introduction to a matrix analysis of Arapaho subject and object morphemes: "[Attempts] on the part of the present author [extending back over a decade] to isolate a specific subject or object suffix and to state its function, shape and relative position ended in tantalizing frustration just short of success. This happened because the traditional principles of morpheme analysis could not handle what seemed to be fusion or alternation of a special or complicated type."

² The correspondence between my forms and the table of suffixes of the transitive conjugation given and discussed by Kroeber in his "Arapaho Dialects" (p. 110ff.) is quite remarkable considering the fact that he recorded Arapaho usage of about 1900. Of the three discrepancies between my set and his, two of Kroeber's forms I believe to be in error: his -eiānāⁿ, referring to both *you* (pl.) . . . *us* and *you* (pl.) . . . *me*, does not now extend to *you* (pl.) . . . *me*, and, judging from the over-all patterning of the set, it is unlikely that it ever did; his -ātⁱ, referring to *we* . . . *them*, also appears to be without support. Kroeber's -a^{nt}ⁱ for *he* . . . *them* is apparently a usage by extension from -a^{nt}ⁱ meaning *he* . . . *him*, which he also recorded; today, one may hear both nōnoohobéiθi' wóókečii and nōnoohówoot wóókečii *he sees [them] cows* (the -oo- of nōnoohówoot corresponds to Kroeber's -a^{nt}ⁱ).

Even though Kroeber considered some of the transitive constructions unanalysable, many of his observations concerning the Arapaho grammar in general and the verb morphology in particular are very penetrating.

BLACKFOOT PARADIGMS AND MATRICES

BY DONALD G. FRANTZ*

Introduction

This paper is intended to illustrate analysis of some of the more complex and problematical Blackfoot paradigms via matrix technique.¹ Simpler paradigms are discussed in terms of matrix theory in order to make clearer what will be done on the more complex paradigms.²

Possessive Paradigms

The simplest paradigm is one in which there is a single difference between any two members of the paradigm. (The term paradigm, as used throughout this paper, is nearly equivalent to 'set,' being any defined portion of the total array of inflectional forms of a stem.) An example from Blackfoot is that of singular possessed forms of *hand/arm*: *noʔtsís my hand*, *koʔtsís your hand*, *oʔtsís his hand*. As a matrix, there are here three categories (persons) for one dimension, and only one category (singular) for the other. Adding a second category of plurality of possessed item doubles the number of items:

noʔtsís	my hand	noʔtsiists(i)	my hands
koʔtsís	your hand	koʔtsiists(i)	your hands
oʔtsís	his hand	oʔtsiists(i)	his hands

In the resultant matrix, with three vertical and two horizontal categories (giving six intersections), there is only one difference between any two adjacent forms. If these are considered two paradigms, there is a constant difference between the two sets.

More complex are paradigms showing both number and person of possessor. Consider the independent pronouns:

niistó	my self	niistónnaan	our (excl.) selves
kiistó	your self	kiistónnoon	our (incl.) selves
ostói	his self	kiistóao	your (pl.) selves
		ostóaoai	their selves

As two paradigms, these do not differ by one constant difference but by a variable that is a function of the person of the possessor. As a single matrix there are two dimensions: person of possessor versus number of possessor. However, within this matrix there are sub-matrices (more properly, portions of the formative array in the total field) with separate systems; that is, the prefix is determined by person³ alone, and the suffix (or lack of one) is determined by both person and number:

	Prefix			Suffix	
	Sing.	Plural		Sing.	Plural
1	ni	ni	1	—	nnaan
12		ki	12		nnoon
2	ki	ki	2	—	ao
3	o	o	3	i	aoai

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(A hyphen at a sub-matrix intersection indicates that a formative occurs at that intersection in the total matrix, though not in the sub-matrix at hand; an empty intersection indicates that there is no formative at that point even in the total matrix, and hence that intersection is irrelevant for the sub-matrix.)

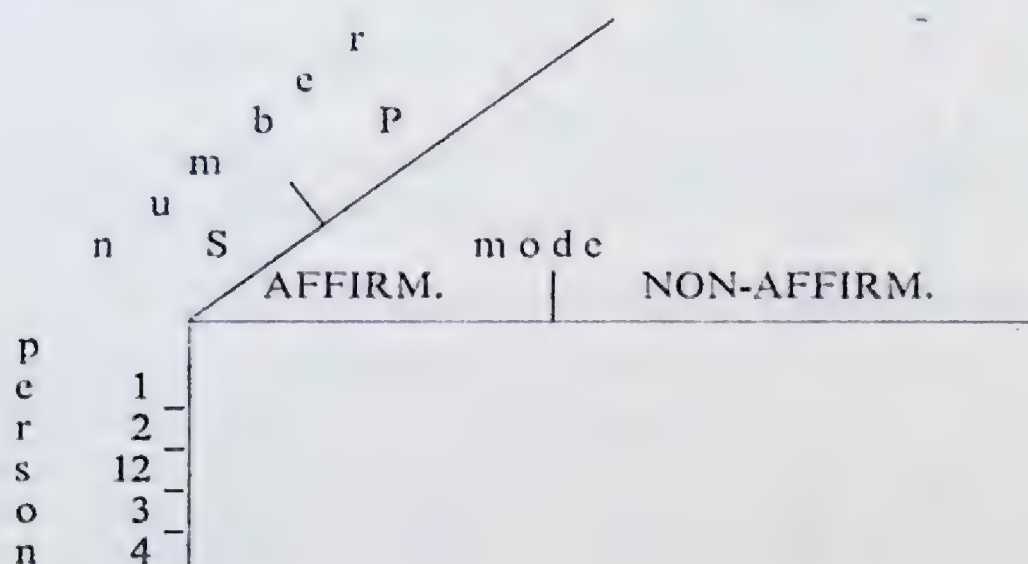
Intransitive Independent Verb

Consider the relation between two sets of suffixes for the intransitive verb. The first set is semantically affirmative, the second non-affirmative (used with interrogative or negative prefixes, or alone to indicate uncertainty):

<i>Affirmative</i>			<i>Non-Affirmative</i>		
	<i>Sing.</i>	<i>Plural</i>		<i>Sing.</i>	<i>Plural</i>
1		xpinnaan	1	xpa	xpinnaan
2		xpoao	2	xpa	xpoao
12		o'pa	12		o'pa
3	o	iao	3	oatsiks	oaiksao
4	inai	aiks	4	oatsiksinai	oatsiksaiks

As two paradigms, there is no more than one difference between corresponding members of the two sets. But the difference is not constant, being a function of both person and number.

As a single matrix, there are three dimensions here: person, number, and mode.



This three-dimensional matrix can be reduced to a two-dimensional matrix for easier study by incorporating number and person into one dimension.

	<i>Affirmative</i>	<i>Non-Affirmative</i>
1		xpa
2		xpa
11	xpinnaan	xpinnaan
22	xpoao	xpoao
12	o'pa	o'pa
33	iao	oaiksao
3	o	oatsiks
4	inai	oatsiksinai
44	aiks	oatsiksaiks

There are portions that are common to both columns. These can be extracted as a sub-matrix:

	<i>Affirmative</i>	<i>Non-Affirmative</i>
1		—
2		—
11	xpinnaan	xpinnaan
22	xpoao	xpoao
12	o?pa	o?pa
33	iao	iao (ksiV > ksV)
3	//O// (> o)	//O// (> o after consonant)
4	inai	inai
44	aiks	aiks

The remainder has formatives only in the non-affirmative portion:

	<i>Affirmative</i>	<i>Non-Affirmative</i>
1		xpa
2		xpa
11	—	—
22	—	—
12	—	—
33	—	oaiks
3	—	oatsiks
4	—	oatsiks
44	—	oatsiks

This arrangement has provided two sub-matrices, one with formatives equivalent to suffixes of the affirmative paradigm, and one with formatives equivalent to the difference between the affirmative and non-affirmative paradigms. This difference could easily be seen by comparison of the original paradigms, of course, but the foregoing is an attempt to define this non-constant difference in terms of the matrix scheme.

Now consider the extreme example of sub-matrix systems operating in a larger matrix to provide contrast for a large number of category intersections.

The Transitive Animate (Independent) Verb

The transitive animate verb has four dimensions or groups of categories of which a particular form is a function: person of actor, number of actor, person of goal, and number of goal. Number and person can be combined for actor and goal to give a two-dimensional matrix of Actor versus Goal.

The chart TAVI presents the total matrix of person affixes of the transitive animate verb, independent order. Actor persons are the categories of the vertical dimension, and goal categories are on the horizontal dimension. (Transcription is morphophonemic; phonemic shapes may be arrived at by application of the following rules: 0 is zeroed before y or i, after 0, and after a consonant, elsewhere 0 becomes o; t becomes ts before i; y is zeroed after a consonant; ix becomes ss between t and a consonant.)

The first sub-matrix to be examined is that of the person prefix:

	1(1)	2(2)	12	3(3)	4(4)	5(5)
1(1)	—	kit	—	nit	nit	
2(2)	kit	—	—	kit	kit	
12	—	—	—	—	—	
x	nit	kit	—	—	—	
3(3)	nit	kit	—	—	—	
4(4)	nit	kit	—	ot	—	—

Chart TAVI (person affixes)

	1	11	2	12	3	33	4	44	5
1	1		kit- -o		nit- -aO	nit- -aiaO	nit- -ayini	nit- -ayi	
11			kit- -oxpinnaan		nit- -annaanO	nit- -annaaniaO	nit- -ainnaanyini	nit- -ainnaanyi	
2	kit- -Oki	kit- -Okixpinnaan			kit- -aO	kit- -aiaO	kit- -ayini	kit- -ayi	
22	kit- -OkixpoaO	kit- -Okixpinnaan			kit- -aoaOO	kit- -aoaOiaO	kit- -aoaOyini	kit- -aoaOyi	
12					-aO	-aiaO	-ayini	-ayi	
x	nit- -Oko	nit- -Otixpinnaan	kit- -Oko		-aO	-aiaO	-ayini	-ayi	
3	nit- -OkO	nit- -OkinnaanO	kit- -OkO	-Otixp					
33	nit- -OkiaO	nit- -OkinnaaniaO	kit- -OkiaO	-Okio			-yiOai	-yiOaiks	
4	nit- -Okyini	nit- -Okinnaanyini	kit- -Okyini	-OkiaaO			-yiaaOai	-yiaaOaiks	-yiyini
44	nit- -Okyi	nit- -Okinnaanyi	kit- -Okyi	-Okiyi	ot- -OkO	ot- -OkoaOiaO			-yiyi
				-Okiyi	ot- -OkO	ot- -OkoaOiaO			

Occurrence and shape of formatives here are a function of person only. Intrusion of the kit cross pattern into the 1(1) column and row indicates a priority of choice of the former where both 1 and 2 are involved (i.e., other than jointly as 12). This priority of choice can be indicated in morphological treatment by glossing kit as *2 involved independently* (again, other than as 12) and nit as *1 involved, 2 not involved*. Since ot is present only when 4(4) acts on 3(3), it can be glossed as *4 involved, 1, 2, 5 not involved*.

The second sub-matrix to be examined is made up of those elements immediately following the stem and is here termed the relator:

	1	11	2	22	12	3(3)	4(4)	5
1(1)			o	o		a	a	
2(2)	Ok	Ok				a	a	
12						a	a	
x	Ok	Oti	Ok	Oti	Oti	a	a	
3(3)	Ok	Ok	Ok	Ok	Ok		yi	
4(4)	Ok	Ok	Ok	Ok	Ok	Ok		yi

If the person categories are ranked in order of descending 'personalness' from the point of view of the speaker (1, 2, 12, x, 3, 4, 5), then all those intersections to the upper right of the diagonal line have the higher ranked of the persons involved as actor; those intersections to the lower left of the diagonal line have the lower ranked person as actor. Morphological description can recognize two basic relator morphemes, but there will be a large number of allomorphs, the distribution of which helps signal more information about the persons involved than their polarity. For example, the -o for 1 acting on 2 must signal to the listener that the speaker is involved, for it is only in this combination of persons that final o occurs immediately after the stem, and there is no other overt indication of the speaker's involvement in this form.⁴

Within this relator sub-matrix there is another sub-system in cases where indefinite person acts on speaker and/or addressee:

		Sing.	Plural
G	1	Ok	Oti
o			
a	2	Ok	Oti
l			
	12		Oti

The next sub-matrix is made up of what earlier I have called an empty morph:⁵

	1	11	2	22	12
1			-	xp	
11			xp	xp	
2	-	xp			
22	xp	xp			
12					
x	-	xp	-	xp	xp

However, study of this matrix has suggested the label 'intimate morph,' because occurrence of this morph in affirmative paradigms is restricted to those cases where 11, 22, or 12 is involved and 3 or 4 is not.

The speaker and addressee plural matrix arrangement to follow shows the 11 and 22 suffixes. The occurrence of either of the two morphemes here is a function of both number and person:

	11	22	1	2	12	4(4)	33	3
11		innaan		innaan		innaan	nnaan	nnaan
22	innaan		oaO			oaO	oaO	oaO
1		oaO		-		-	-	-
2	innaan		-			-	-	-
x	innaan	oaO	-	-	-	-	-	-
12						-	-	-
4(4)	innaan	oaO	-	-	-		-	-
3(3)	innaan	oaO	-	-	-	-		

The fact that the (i)nnaan inverted L pattern flanks the oaO inverted L pattern indicates priority of choice for the 11 suffix. The two morphemes here are then -innaan ∞ -nnaan *11 involved*; and -oaO *22 involved, 11 not involved*.

The 3 and 33 suffixes are most easily seen when the matrix categories are permuted to this arrangement:

	1(1)	2(2)	12	4(4)	33	3
1(1)		-		-	iaO	O
2(2)	-			-	iaO	O
12				-	iaO	O
x	-	-	-	-	iaO	O
4(4)	-	-	-		oaiaO	O
33	iaO	iaO	iaO	iaO		
3	O	O	O	O		

The morphemes are -iaO ∞ -oaiaO *33 involved* and -O *3 involved*.

Finally, the 4 and 44 suffixes are grouped best with the following arrangement of categories:

	1(1)	2(2)	12	3(3)	5	44	4
1(1)		-		-		yi	yini
2(2)	-			-		yi	yini
12				-		yi	yini
x	-	-	-	-		yi	yini
3(3)	-	-	-			aiks	ai
44	yi	yi	yi	-	yi		
4	yini	yini	yini	-	yini		

Morphemes -yini *4 involved* and -yi *44 involved* are indicated for all cases except those where 3(3) is also involved; these cases require allomorphs -aiks and - $\emptyset$ for *44 involved* and -ai and - $\emptyset$ for *4 involved*.

Each of these sub-matrices adds various contrasts, and the result for the total matrix TAVI is that the filler of nearly every intersection differs from that of every other intersection by at least one contrast contributed by the sub-matrices. Those few pairs of intersections with ambiguous fillers are enclosed in boxes on chart TAVI. (There are two more intersections with fillers that are identical on the phonemic level: 2 $\rightarrow$ 1 and 44 $\rightarrow$ 2.)

Summary

Matrix techniques can be invaluable for discovery of formative patterns and meanings, particularly when various formatives from the same construction paradigm do not pattern the same and/or their shape and distribution are a function of different factors. In some cases it would seem that little is gained by attempts to assign a meaning to each formative.⁶ For some purposes, presentation of sub-matrices, far more revealing than presentation of full paradigms alone, may suffice.

NOTES

¹For background theory and methodology see K. L. Pike, "Theoretical Implications of Matrix Permutation in Fore (New Guinea)," *Anthropological Linguistics* 5:8. 1-23 (1963); and Pike and Erickson, "Conflated Field Structures in Potawatomi and in Arabic," *International Journal of American Linguistics* 30. 201-212 (1964).

²Data were collected on the Blackfoot Reserve near Gleichen, Alta., during 1961-64. Various native speakers acted as informants.

³Numerals will be used throughout the remainder of this paper to indicate persons involved in a construction as follows: 1= speaker, 2= addressee, 3= primary (most prominent) topic, 4= less prominent or subordinate topic (obviative), 5= topic subordinate to 4 (subobviative); plurals are indicated by repeated digits (e.g., 11 speaker plural); 12 indicates speaker and addressee involved jointly ('inclusive'); x= indefinite person.

⁴As a more detailed attempt to determine the meaning of formatives, the i portion of 2(2) → 1(1) and 3(3) or 4(4) → 12 intersections, and the o of the 1(1) → 2(2) intersections (the o to be replaced by ∅ [zero]) can be removed from the relator matrix. These, with a zero alloformative for 12 → 3(3) or 4(4) intersections, can then make up the formatives of an additional sub-matrix:

	1(1)	2(2)	12	3(3)	4(4)
1(1)				—	—
2(2)	i			—	—
12		o		∅	∅
x	—	—	—	—	—
3(3)	—	—	i	—	—
4(4)	—	—	i	—	—

The formatives of this sub-matrix can be said to signal that the speaker is involved, but only for those intersections in the total matrix (TAVI) for which this fact is not already signalled by the prefix nit-.

⁵"Person Indexing in Blackfoot" *IJAL* 32.50-58 (1966).

⁶Since writing the above, I have become convinced of the value of feature treatment for the problem of variables such as those displayed in this paper (see Chomsky, Noam, *Aspects of the Theory of Syntax*, Cambridge (1965), Chapter 4, section 2.2).

If the matrix is viewed as a vector system, the dimension categories of the matrix are analogous to values for the various axes of that vector system, and the intersection formatives of the matrix are the resultant vectors of the vector system. Since feature treatment is also an analog of a vector system, Pike and Chomsky are proposing similar solutions to the problem of relating combinations of grammatical features to their phonological representation when that representation does not lend itself to linear morphemic analysis.

A generative grammar could refer to categories of matrix dimensions for phonological representation of lexical feature combinations, but the treatment outlined by Chomsky seems preferable.

INITIAL CHANGE IN BLACKFOOT

BY ALLAN R. TAYLOR*

1. One of the more interesting problems of Algonkian morphophonemics is that which Bloomfield has termed "initial change."¹ In the languages described by Bloomfield this feature was a phenomenon of certain prefixless initial syllables of dependent mode verbal stems and participles. It is particularly important to give a short description of this feature in Blackfoot both because it was never discussed by Uhlenbeck in his grammar,² and because the feature in Blackfoot differs in several interesting ways from its equivalent in other Algonkian languages.

Virtually all root morphemes in Blackfoot have different shapes when the root is in initial as opposed to medial position in a construct. It is not my intention here to attempt to describe this complex allomorphy, for in order to do this adequately, with citation of the numerous necessary forms, a great deal of time would be required. What I propose to do, however, is to discuss those types of vowel alternations which are restricted to initial syllables of certain finite verbal forms and are, at least in part, cognate with the phenomena described by Bloomfield and others.

2. Before turning to a consideration of initial change in Blackfoot, it would be well to review briefly the situation as it exists in other Algonkian languages for which modern descriptions are available. I shall present statements, with examples when available, for Proto-Central-Algonkian, Fox, Menomini, Ojibwa, Potawatomi, Cree, and Delaware. Potawatomi data are from Hockett, "Potawatomi"; Cree data are from Ellis, *Spoken Cree*, volume I; Delaware data are from Voegelin, "Delaware, an Eastern Algonquian Language"; and the remainder are from publications of Bloomfield.

2.1. For Proto-Central-Algonkian, initial change is discussed in paragraph 45 of "Algonquian." According to his summary, /a/ and /e/ were replaced by /ee/, /o/ by /oo/; to a long vowel /ay/ was prefixed. Bloomfield gives only one PCA example, unchanged /e/ alternating with changed /ee/: *neʔθaawa 'he was killed,' changed *neeʔθenči 'when he was killed.'

2.2. Bloomfield discusses initial change in Fox in paragraph 93 of his 1925-1927 restatement of William Jones's grammar of Fox. In initial change /a/ and /e/ (initially /i/) are replaced by /ee/; the vowel /o/ is replaced by /wee/. Long vowels remain unchanged. For examples of Fox and the remaining languages, see the accompanying tables.

2.3. In his posthumously published grammars of Ojibwa and Menomini, Bloomfield gives summaries of initial change with examples. For Menomini

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the statement, paragraphs 4.73 through 4.79 of *Menomini*, is as follows: /a/ and /ε/ are replaced by /ε·/; initial /o/ is replaced by /we·/, non-initial /o/ is lengthened to /o·/; initial /ya·/ has /a/ prefixed to it; consonant plus /wa·/ and consonant plus /ya·/ have consonant plus /ay/ and /wa·/ or /ya·/; all long vowels except these special instances of /a·/ have an /ay/ prefixed to them.

2.4. The summary for Ojibwa appears in paragraph 4.2 of *Eastern Ojibwa*. Before /a·/ or /ε·/ the syllable /ay/ is added, and if the unchanged initial syllable begins with /w/, the /w/ is dropped before the added /ay/; /i·/ is replaced by /a·/, /o·/ by /wa·/; /a/ and /i/ are replaced by /ε·/, and /o/ by /we·/.

2.5. Potawatomi initial change, termed *ablaut* by Hockett, is discussed in paragraph 7.11 of "Potawatomi"; /a/ and /ε/ show no change, /i/ and constant /o/ are replaced by /a/. /u/, when not lost, is replaced by /ε/ (if initial, by /ʔε/); /o/ alternating with *o* is replaced by /we/ when initial, but when not lost medially it shows no change.

2.6. The Cree summary and examples are from Chapter 19, pages 15, 16, and 24, of *Spoken Cree*.³ The alternations, cast in Bloomfield's descriptive style for the sake of uniformity, are as follows: /i·/ is replaced by /a·/, /o·/ by /wa·/; /ε·/ and /a·/ have the syllable /iy/ prefixed to the long vowel. /i/ and /a/ are replaced by /ε·/, /o/ is replaced by /we·/.

2.7. The statement for Delaware and the examples are from paragraphs 4.1, 4.9, and 4.11 of "Delaware." For Delaware, Voegelin states: "In initial syllable change, characteristic of the participle mode, the first vowel of a syllable is replaced by -e-."

2.8. A restatement of all these alternations, with the exception of those in Delaware, is given below in an integrated Table. Transcriptions have been normalized for uniformity. The unchanged form of the vowel is as it appeared in PCA, but footnotes to the Table specify any differences from this in the present-day languages.

TABLE 1. *Integrated table of alternations—excluding Blackfoot, Delaware*

Unchanged	Changed					
	PCA	FOX	MENOMINI	POTAWATOMI	OJIBWA	CREE
i·*	ayi·	i·	aye·	a	a·	a·
ε·	aye·	ε·	aye·	ε	aye·	iyε·
o·*	ayo·	o·	ayo·	a	wa·	wa·
a·	aya·	a·	aya·	a	aya·	iya·
ε*	ε·	ε·	ε·	ε	ε·	ε·
a*	ε·	ε·	ε·	ε	ε·	ε·
o	o·	we·	we·- -o·-	we- -o-	we·	we·

- * i· Menomini: both /i·/ and /ε·/.
- o· Menomini: both /o·/ and /u·/.
- ε Fox: /i/ initially, /ε/ medially.
Potawatomi: /u/.
- Ojibwa: /i/.
- Cree: /i/.
- a Potawatomi: /u/.

3. Initial change in Blackfoot has two major characteristics:

1) The alternations are restricted to *certain roots only*, with the possible exception of those with semivowel initial. Judging from the data in my possession, the number of roots subject to initial change is relatively very few.

2) Initial change appears in prefixless finite verbal forms of both independent and dependent modes. Persons where change may be expected are

- a) 3rd and 4th persons, singular and plural, and 1st person plural inclusive of the affirmative independent indicative;
- b) 1st person plural inclusive of the affirmative conjunct;
- c) all persons of the affirmative present subjunctive.

It is important to note that in most cases initial change is not obligatory. Not all were tested with regard to substitutability, but various examples were collected both with and without change in the environments where change is attested. Note, moreover, that two examples of change were collected in an environment where initial change is not expected historically (see Table IVa, examples in parentheses, left-hand column). Because initial change is a non-productive feature, part of the information which must be supplied for every root is whether or not it may undergo change.

3.1. The commonest type of initial change (about sixty-five roots) is the insertion of a syllable /ay/ between the first consonant and the first vowel of the root. The syllabic nucleus of the unchanged root may be a single vowel or a vowel cluster, either homophonous or heterophonous. The initial consonants in such roots are only /p k s/ (see, however, section 3.2 below), with most examples having /p/. Numerous examples of initial change of this type are given in Table I of the Blackfoot examples.

3.2. When a root begins morphophonemically with [Y] or [y],⁴ initial change appears at the phonemic level as an /a/ increment 'prefixed' to the root. However, since semivowels which are absolutely initial at the morphophonemic level are phonemically zero, this may be regarded descriptively as the same /ay/ infix: [y-ay-] > /ay-/.

Initial change here is apparently facultative; it may be restricted to specific roots, as in the group just considered, but I cannot state this as a certainty, for I have not tested all such roots with an informant. I give examples of initial change of this type in Blackfoot Table IIa. In Table IIb are examples of a [Y] root which may have a facultative nasal prefix when the vowel is unchanged.

3.3. Considering the number of examples collected, the next most important group of examples of initial change is that in which there is an alternation between unchanged /ii/ and changed /aa/. The alternation appears to be facultative, for forms were collected with change both present and absent in the same syntactic environments. Informants uniformly translate changed forms with English past tense verbs. Members of this group have an obligatory nasal prefix when the root is changed, but when the root appears in unchanged form the nasal prefix may be absent. The nasal prefix is usually present in forms in which initial change never occurs. In effect, then, in the environment in which change is expectable three forms may be found: one with change and a nasal

prefix; and two without change, one with a nasal prefix, one without. Examples are given in Table IIIa.

3.31. A pair of examples was collected in which the changed forms may be like those of either the consonant initial group (3.1) or the group just described (3.3). These examples are in Table IIIb.

4.0. The remaining types of initial change are rare, in some cases limited to a single root.

4.1. An alternation found in two roots has unchanged /oo/ alternating with changed /aa/. This alternation is curious in that the changed vowel, as noted above, *may* occur in an environment in which initial change is unexpected historically. The changed vowel is obligatory, however, in those forms where initial change is predictable historically (See Table IVa for examples.)

4.2. There is a facultative alternation in one root between unchanged /i/ and changed /aa/. Examples of this alternation are in Table IVb.

4.3. Unchanged /o/ alternates facultatively with changed /aa/ in one root. For examples refer to Table IVc.

4.4. There is an obligatory alternation of unchanged /i/ with changed /ii/ in three roots. See Table IVd for examples of this alternation.

4.5. One root which has an obligatory alternation of unchanged /o/ with changed /oo/ was found. Examples are in Table IVe.

4.6. The following is a recapitulation, in tabular form, of the various types of initial change which occur in Blackfoot:

	<i>unchanged</i>	<i>changed</i>
<i>generally facultative</i>	-ii-	-aa-
	-oo-	-aa-
	ø-	-ay-
	-i-	-aa-
	-o-	-aa-
<i>obligatory</i>	-i-	-ii-
	-o-	-oo-

An interesting pattern is discernible in these different types of alternation. Note that in the case of those alternations designated as *generally facultative*, the changed vowel differs in *quality* in every instance, and in some instances in *quantity* as well. On the other hand, where the changed vowel differs from the unchanged by the feature of length alone, the alternation is *obligatory*.

The most striking difference between initial change in Blackfoot and in the historical counterpart is that in Blackfoot the inherited feature has spread from a particular environment in specific dependent modes to similar environments in the independent mode as well. Moreover, the occurrence of change in a few recorded imperatives (those included in parentheses in the tables of examples) indicates that the feature is in the process of spreading even further. Beginning as an identifying feature of particular dependent modal forms, initial change passed on in Blackfoot to become the mark of certain roots when in initial position in any finite verbal form, and, beyond this, a sporadically attested tendency exists to employ initial change as the mark of the root when in initial position in any verbal form. On the other hand, there exists a counter-tendency—

that of the reduction of roots to a uniform shape—so that initial change has doubtless disappeared as a latent capacity of many roots, and in most roots where the capacity continues, even with its considerably broadened scope, it is nevertheless *facultative*. Those instances of *obligatory* initial change have survived because the vestigial vowel alternations happen to coincide with a much wider pattern of alternations in length between initial and medial syllables.

5.0. At this point I may perhaps venture to equate various alternations of Blackfoot with those of the Central languages. Like Menomini, Blackfoot has an infix -ay- in all roots containing a long unchanged vowel, but also in some instances in roots where the unchanged vowel is short today. Roots in [y] also participate in this pattern in both languages. Like Ojibwa-Cree, Blackfoot has an alternation of unchanged /ii/, changed /aa/. In Blackfoot this alternation is found only in roots which take either a facultative or obligatory nasal prefix when the root is initial in a construct. Also like Ojibwa-Cree, Blackfoot has an alternation of unchanged /oo/ with changed /aa/ (post-consonantal /w/ does not occur in Blackfoot), but in Blackfoot this alternation is found in only two known roots.

Because all the regular vowel correspondences are not known, it is difficult to identify the alternations in which the unchanged vowel is short with the probable cognate features in the Central languages. It seems reasonable to equate the Blackfoot alternation of unchanged /o/ changed /oo/ with the same alternation in Menomini. Moreover, it is certain that at least *one* instance of the Blackfoot unchanged /i/ changed /ii/ alternation belongs with the Central unchanged /a/ changed /ee/, for the Blackfoot root {sik} 'seize' is cognate with Central {sak} having the same meaning.⁵ This leaves the Blackfoot alternations of unchanged /i/ and /o/ with changed /aa/. It is possible that these are the equivalent of Central unchanged /e/ changed /ee/, since slightly differing earlier phonemic environments could account for the different reflexes: *pesat-, *peesat- > pisat-, paasat-; *kwekot-, *kweekot- > kokot-, kaakot-. */e/ in the environment of */s/ > /i/, */we/ > /o/; /ee/ > /aa/ in the environment of a labial.

Fox examples (From paragraph 93, "Notes on the Fox Language," IJAL 4.194.)

	<i>unchanged</i>	<i>changed</i>
i·	ki·šikiwa 'he grows up'	ki·šikita 'he who is grown up'
e·	no example given	no example given
o·	no example given	no example given
a·	no example given	no example given
e	pemiseewa 'he flies past'	peemisaaci 'when he flew past'
i	išawiwa 'he does so'	eešawiwaaci 'the way they do'
a	makekinwa 'he is big'	meekekineka 'the big one'
o	nowiwa 'he goes out'	nweewiiaanini 'whenever I go out'

Menomini examples (From paragraph 4.74, page 98, *Menomini*.)

e·	no example given	no example given
ē·	no example given	no example given
o·	po·sew 'he embarks'	payo·set 'when he embarked'
a·	wa·pahtam 'he looks at it'	waya·pahtah 'when he looked at it'
	a·ʔtew 'it is extinguished'	aya·ʔteken 'whenever it is extinguished'
	kuahnew 'he jumps'	kayuahnet 'when he jumped'
	piat 'when he comes'	payiat 'when he came'
	ya·hpi·w 'he comes again'	aya·hpiat 'when he came again'

unchanged

e	ehka·htah	'when he drinks it up'
a	ahsa·met	'when he feeds me'
	nato·met	'when he calls me'
o	osa·me'taw	'he overdoes it'
	po'se·hkam	'he dons it'

changed

e	hkahtah	'when he drank it up'
e	hsamet	'when he fed me'
	ne·tomet	'when he called me'
	we·sa·me'tat	'when he overdid it'
	po·'sehkah	'when he donned it'

Ojibwa examples (From paragraph 4.2, page 23, *Eastern Ojibwa*.)

i	ki·pieya·	'he came here'	ka·pieya·t	'when he came here'
e	te·wi·ssenit	'if he had eaten enough'	taye·wi·ssenit	'when he had eaten enough'
o	no·ntuwa·t	'if he hears him'	nwa·ntuwa·t	'when he heard him'
a	na·nakan	'it is light of weight'	neya·nkeninekin	'those which are light of weight'
e	kemiwank	'if it rains'	ke·muwank	'when it rained'
i	no example given		no example given	
a	nenkamot	'if he sings'	ne·nkemot	'when he sang'
o	uncicuwān	'it flows from there'	we·nceciwank	'whence it flows'

Potawatomi examples (From paragraph 7.11, "Potawatomi III", IJAL 14.139.)

(Unchanged examples are Hockett's *morphophonemic* forms.)

i	ki nUpot	ka mpot	'the one who died'
e	nemot	nemot	'the one who breathes'
o	nok·anUk	nak·anuk	'the one I hired'
a	wapUmawat	wapmawat	'the one they see'
u	UšU čUket	ʔeš čuket	'how he does it'
	nUpot	nepot	'the dead one'
o	wUčU pikUtUpeš·Uk	weč piktupeš·uk	'why it breaks'
	non-initial o~ø	no example given	

Cree examples (From chapter 19, p. 15, 16, 24 of *Spoken Cree*.)

i	ki·we·w	'he returns home'	ka·we·t	'returning home'
e	me·tawe·w	'he plays'	miye·tawe·t	'playing'
o	po·siw	'he embarks'	pwa·sit	'embarking'
a	a·hkosiw	'he is ill'	iya·hkosit	'being ill'
i	nipa·w	'he sleeps'	ne·pa·t	'sleeping'
	itohte·w	'he goes there'	e·tohte·t	'going there'
a	mawapiw	'he visits'	me·wapit	'visiting'
	ayamiw	'he speaks'	e·yamit	'speaking'
o	kočihta·w	'he tries'	kwe·čihta·t	'trying'
	ohči·w	'he comes from ...'	we·hči·t	'coming from ...'

Delaware examples (From paragraphs 4.9 and 4.11, p. 148, of "Delaware, an Eastern Algonquian Language.")

entawəle·lōntank	'when he is glad'	we·we·lōntank	'one who is glad'
ntəlankú·ma	'I am related to him'	e·lankú·mak	'my relative'

Blackfoot examples

Table I

1.	páinixkaawa	'it is sore'	payáinixkaawa	'it hurt'
2.	pakkixkááni	'bursting, rupturing'	payákkixkaawa	'it burst; blowout (tire)'
3.	nitsipáotsimawa	'I spurned him'	payáotsimiiwa	'he spurned him'
			(payáotsisa	'spurn thou him!')

unchanged

4. nitsipii 'I entered'
piiminowaainiki 'when, if you folks enter'
5. nitáipiski 'I empound bison'
6. áipssimay 'he patches, quilts it'
7. iipóónixkaawa 'it is broken'
poonixkáási 'when, if it is broken'
8. po'tááni 'cooking fire, stove'
9. nitáipottska 'I choke'
pottskááni 'choking'
10. áiksiskaaxkoyiiway 'he nudges him'
ksiskaaxkóokit 'nudge thou me'
11. áiksi'sòowa 'he goes out of sight'
12. kò'pót 'fear thou!'
áiko'pomma 'he fears'
kò'pómma 'he fears'
kò'pósi 'when, if he fears'
13. saamít 'hunt thou!'
saam'ssini 'hunting'
14. nitsaataki 'I miss in shooting'
sáatakiwa 'he missed'
15. saskinááni 'cough, coughing'
áisaskinaawa 'he coughs'
16. sattsinimmay 'she slit it'
sattsinít 'slit thou it!'
17. áisi'katsiiway 'he kicks at him'
si'katóómiininiki 'when, if you kick at it'
18. sikkoxsákit 'render thou grease!'
19. áisootomakiwa 'he snorts'

changed

- payíima 'he entered'
payíiminowaainiki 'when, if you folks enter'
- payó'si 'that we entered'
- payiskiwa 'he empounded bison'
- payíssimay 'he patched, quilted it'
- payóónixkaawa 'it is broken'
payóónixkaasi 'when, if it gets broken'
- payó'taawa 'he built a fire'
- payóttaskaawa 'he choked'
- kayískaaxkoyiiway 'he nudged him'
(kayískaaxkookit 'nudge thou me!')
- kayí'sòowa 'he went out of sight'
- kayó'pomma 'he got scared'
- kayó'po'sii 'that we feared'
- sáamiwa 'he hunts, he went hunting'
- sayáatakiwa 'he missed'
- sayáskinaawa 'he coughed'
- sayáttsinimmay 'she slit it'
- sayí'katsiiway 'he kicked at him'
sayí'katooxi 'that we kicked it'
- sayíkkoxsoyiwa 'it (grease) is rendered'
- sayóótomakiwa 'he snorted'

Table IIa

□ y □

1. nitááxkoomoxsi 'I vowed'
2. nitóóxki'pa 'I waited for it'
nitáiyooxki'pa 'I wait for it'
3. nitóóxsinyaawa 'I killed him'
nitáiyooxsinyaawa 'I'm killing him'

□ Y □

4. nitáiyiistsinitaki 'I cut'
íistsini'si 'that it was cut'
íistsini'ki 'when, if it gets cut'
5. nitsíssitoo'pa 'I hit it with a missile'
íssitoot 'hit thou it with a missile'
6. nitáiyissksipistaki 'I tie'
7. nitsóóxkoyaawa 'I covered him
(a vessel)'
(ayóóxkoyiisa 'cover thou him!')
óóxkoyiisa 'cover thou him!'

- ayááxkoomoxsiwa 'he made a vow'
- ayóóxkimàyi 'he (obv.) waited for it'
- ayóóxsiniway 'he killed him'

- ayiistsinitakiwa 'he cut'
ayiistsini'pa 'it got cut'
- ayíssitoomay 'he shot it'
- ayíssksipistakiwa 'he tied up'
ayíssksipi'pa 'it was tied'
ayíssksipi'si 'that it got tied up'
- ayóóxkoyiiway 'he covered him
(a vessel)'

unchanged

8. áíyo?kaawa 'he sleeps'
o?káási 'when, if he slept'
9. nitsó?kyaawa 'I locked him up'
nitáíyo?kyaaki 'I close'
ó?kiisa 'lock thou him up!'

changed

- ayó?kàá?si 'that we slept'
ayó?kiiway 'he locked him up'

Table IIb

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. míistapàá?pa 'we went away'
míistapaapiksi?si 'that it was thrown
away'
íistsipiiway 'he kidnapped her'
míistapòot 'go thou away!' | <p>ayiistapàá?pa 'we went away'
ayiistapaapiksi?pa 'it was thrown
away'</p> |
|---|---|

Table IIIa

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. iináániwa 'he owns property'
míinánatoot 'own thou it!' (Tims) 2. níinixkatoomay 'he calls upon it'
niinixkátsisa 'call thou upon him!'
iinixkátoot 'call thou upon it!' 3. iinoyiiway 'he saw him'
niinóósa 'see thou him!'
(nóónoyiiway 'he saw him') 4. niipoyíwa 'he stops, stands still'
nitsipóyi 'I stopped'
niipoyít 'stop thou!' 5. niistsikím?siiway 'he melted him
(metal)'
niistsikím?sakssini 'welding'
niistsikím?sisá 'melt thou him!' | <p>náánàániwa 'he owned property'
náánàáyo?pa 'we owned'
náánixkatawa 'he called him'</p> <p>náánoyiiway 'he saw him'</p> <p>náápoyiwa 'he stopped, stood still'</p> <p>náátsikim?siiway 'he melted him
(metal)'</p> |
|--|--|

Table IIIb

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. nitsipóókaki 'I awaken, wake up'
niipóókakit 'wake thou up!' 2. iipotsímatsiiway 'he poisoned him'
niipotsímatsisa 'poison thou him!' | <p>payóókakiwa 'he woke up'</p> <p>payótsimatsiiway 'he poisoned him'
náápotsimatsiiway 'he poisoned him'</p> |
|---|---|

Table IVa

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. nitsipónixtakkowa 'I got paid'
poonixtátsisa 'pay thou him!'
iiponóóxkiwa 'he lost his animal'
poonotá?sit 'sell thou thy horse!' 2. áikoxpiiwa 'he swells up' | <p>páánixtatoomay 'he paid for it'
(paanixtátsisa 'pay thou him!')
páánooxkatsiiwa 'he lost his animal'
páánota?siwa 'he sold his horse'</p> <p>kááxpíiwa 'it is swollen'
(kaaxpiyít 'swell thou!')</p> |
|--|---|

Table IVb

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. pisátsistotooka 'he put a spell on me'
pisátskaa?ssini 'conjuring, tricks' | <p>páásatsistotowawa 'he put a spell on
him'</p> |
|---|--|

Table IVc

- | | |
|---|----------------------------------|
| <ol style="list-style-type: none"> 1. áaksikokotowa 'it will freeze over'
kokotówa 'ice' | <p>káákotowa 'it froze over'</p> |
|---|----------------------------------|

Table IVd

<i>unchanged</i>	<i>changed</i>
1. siksipísa 'bite thou him!' sikstákssini 'biting, a bite'	siiksipíiway 'he bit him' sikstakiwa 'he bites; pliers'
2. sitokóot 'go into the middle, go into town!'	siitokóowa 'he went into the middle, he went into town'
3. simít 'drink thou!' áísimiwa 'he drinks' sim'ssini 'a drink'	siimiwa 'he drank'

Table IVe

1. sokinísa 'doctor thou him!'	sookiníiway 'he doctored him'
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NOTES

¹ "... initial change, a modification of the first vowel of the verb stem . . ." (paragraph 45, "Algonquian"). Bloomfield's earliest published use of the term was in paragraph 93 of "Notes on the Fox Language," and the later retained the term with the same meaning in his grammars of Eastern Ojibwa and Menomini.

My research on Blackfoot was made possible by grants from the Survey of California Indian Languages and from the American Council of Learned Societies. This support is gratefully acknowledged.

² *A Concise Blackfoot Grammar*, Amsterdam, 1938. Since Uhlenbeck disregarded vowel length almost entirely (cf., his remarks on vowel length, *Grammar*, p. 2), he never discovered some of the types of initial change which occur in the language. Other examples of initial change are confused with aspect (cf., for example paragraphs 74, 81, 89). In one place (paragraph 114, remarks about "stand") he speaks of "vocalic intermutation," but he made no effort to isolate this particular type of morphophonemic alternation for closer analysis. This and other shortcomings are the inevitable result of analysis done far from informants and after the lapse of years.

³ The same statement is also given by Ellis in "The So-Called Interrogative Order in Cree," *Int. J. of Am. Linguistics*, vol. 27, p. 123, fn. 17. Note, however, that there is an error in this table: a· > eya· should read a· > iya·.

⁴ A root-initial [Y] or [y] is posited for those roots which have a /y/ in phonemic forms when an immediately preceding morph ends in a vowel. When an immediately preceding morph ends in a consonant, the two differ in their phonemic representation. [y] in this environment is represented by /ø/. [Y] is /y/ following [p m n], providing a back vowel follows the morphophonemic semivowel. If [Y] is preceded at the morphophonemic level by [k] or [t], the latter appear at the phonemic level as /ks/ and /ts/ respectively, but [Y] is not otherwise evidenced since the sequence /syV/ does not occur. Both appear as /ø/ at the phonemic level in word-initial position.

[Y] is identical in its characteristics to [I], and the two are in complementary distribution: [I] occurs between consonants, [Y] between vowels or between a consonant and a vowel, i.e., one is syllabic, the other is non-syllabic. Different symbols are used in order to avoid ambiguity when both syllabic and non-syllabic [I] occur in sequence.

⁵ Cf., *sakupweewa 'he bites him,' Menomini sakiipiiw 'he bites him,' Shawnee neθakipwa 'I bite him,' Blackfoot ásiksipiiwai 'he bites him,' siiksipíiwei 'he bit him'; all but Blackfoot forms are from "Algonquian," reconstruction number 311.

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PRELIMINARY REPORT ON MALECITE-PASSAMAQUODDY

BY KARL V. TEETER*

Among the Eastern Algonquian languages which are still spoken, none are really sufficiently studied in available published sources. Best off is Delaware, with the work of Voegelin, the Brinton and Anthony dictionary, and the voluminous if hard to interpret work of the Moravian missionaries. We are fortunate in that two of the participants in this Conference have been engaged in study of Penobscot-Abnaki, with the work of Frank Siebert on Penobscot and that of Gordon Day on St. Francis Abnaki, and Algonquian research is due for a great advance as their work appears in print. Micmac, possibly the most interesting and internally divergent of the group, is now receiving the attention of the person mainly responsible for the planning which has brought us together here, Don DeBlois.

This leaves Malecite-Passamaquoddy, which has been less known than any of the others except Micmac, and on which I began field work in the summer of 1963. I should like today to give a rough and tentative progress report on this research. Most of the summer of 1963 I spent in the field, and I have just come from a much shorter trip to the Malecite.¹ My intention is to continue the work as time allows until a reasonably full description of the language is possible.

The two groups called Malecite (or Maliseet) and Passamaquoddy speak a language identical in all important respects. I have not been able to find more than a few differences in lexical items and in phonetics, and there is complete mutual intelligibility. The event mainly responsible for the separation of the two groups was the American Revolution, which resulted in an international border through the middle of their aboriginal territory. Even today, however, there is considerable contact and intermarriage. There appear to be especially close affinities between specific groups of the two. Thus the Malecite of Fredericton, N.B., and the Passamaquoddy of Perry, Me. (near Eastport), are linked by special ties, as are the Malecite of Tobique, N.B., and the Passamaquoddy of Old Town, Me. Presently, however, my material is inadequate and my analysis insufficiently fine-meshed to detail these special relationships.

The Malecite are found today in six reserves along the St. John River (which serves as the Canada - United States boundary at the northern end of Maine and then proceeds southward, eastward, and southward again to empty into the Bay of Fundy at St. John, N.B., some fifty miles northeast of Eastport, Me., as the crow flies). These are spaced over a range of nearly two hundred miles. The smallest and northernmost, at Edmundston, has a population of about fifty. From there it is about seventy miles to the largest, Tobique, with a population of about four hundred; 50 miles to Lower Woodstock, with a population of about one hundred; 30 miles to Kingsclear, with a population of about one hundred and fifty; 20 miles to Fredericton, with a population of about two hundred; and 20 miles farther to Oromocto, with a population of about fifty.² The original

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location of this last group is now within the bounds of Camp Gagetown, a large military base, and there has consequently been a recent move. Besides those living within the reserves, there are perhaps three hundred or more Malecite Indians living in scattered locations around the same general area.

There is then a total of over one thousand who consider themselves Malecite Indians. Most of these are still speakers of the language, but it does not take much observation to see that the days of this situation are numbered, for except for Tobique, the most cohesive of the subgroups, the children are not learning the language any longer. Furthermore, even the oldest of Indians in the area are highly acculturated, and it is not easy to get good informants. Of my two most knowledgeable at Tobique in 1963 one died last winter, and earlier the other suffered an incapacitating stroke. Another man whom I was unable to get in touch with in 1963, who was reputed to know many traditional tales, died during the 1963-64 winter.

My informants have been at Tobique, Woodstock, St. Mary's reserve at Fredericton, and Oromocto, four of the six reserves, but the bulk of my work has been done at Woodstock. My informant there has been Peter Paul, to whom I am highly indebted, and without whose knowledge, intelligence, and good humour my progress would have been greatly retarded. From him and others I now have forty-two texts in various stages of analysis and several hundred pages of notes on paradigms and word and sentence lists, supported by a number of tape recordings.

The present-day Passamaquoddy are found mainly in three locations in the State of Maine. Farthest east is a large group at Pleasant Point, Perry, Me., across from Eastport, with a smaller number at Princeton, some 30 or 40 miles northwest of Perry. The Princeton Indians live in two groups, one just on the outskirts of the town of Princeton; the other, the least acculturated of any Passamaquoddies, a few miles from town on the shores of a lake. Finally, there is a large settlement, probably comparable in population to that at Perry, about a hundred miles west of Perry on Indian Island in the Penobscot River, at Old Town, Me. This was originally a Penobscot settlement, but it is now mostly Passamaquoddy. In the three locations there is a total of about a thousand or more people,³ many of whom speak the language. The proportion of speakers is much less than in the case of the Malecite, however; and in general the Passamaquoddy are much more acculturated than their New Brunswick relatives. During 1963 I visited all the Passamaquoddy settlements, but I was unable to do actual linguistic work except for a short period at Pleasant Point, where I was again fortunate to find a first-rate informant in the person of Benny Neptune.

At the present rudimentary stage of Malecite analysis, the most informative manner of presentation is perhaps simply to list the phonemes and present a text. This will give me the opportunity to show you a little of the language and cast a very few grammatical observations in its terms. The phonemic system will be familiar to any Algonquianist. There are

obstruents	p	t	c	k	kw	s
sonorants	m	n	y	w	h	l
vowels	i	e	o	a	ə	

There is also a word accent that combines features of stress and pitch, which is almost certainly phonemic, but which because of insufficient morphophonemic data, I am forced to mark impressionistically in the text I shall give.

Consonant clusters are rather few and uncomplicated, and the same appears to be true of consonant morphophonemics and morphophonemics in general. As is typical of most Algonquian languages, the greatest complications are in the morphology.⁴ One very important series of clusters might almost as well be considered units, for they are opposed only in the feature of tenseness to the members of that series. They include the following:

hp ht hc hk hkw hs

whose most common phonetic realization is, in fact, as an aspirate followed by an obstruent. Under incompletely determined conditions, however, the stops are simply relatively fortis or followed by aspiration, and the 's' is geminated. There are no phonemic geminate clusters. Single plain obstruents are voiced intervocalically.

On the phonetic level there are a number of vowel clusters, but the exigencies of morphophonemics dictate that many of these be interpreted as separated by semivowel 'y' or 'w', and it may be that this will prove to be generally the case. Consonant 'h,' besides its occurrence in clusters if these are interpreted as written, hardly appears except to separate identical vowels.

The text I have chosen to give as a small sample of the language is a tale of the encounter by two men with a fire demon. This tale was recorded on tape from Peter Paul on June 25, 1963. The text is given with a fairly literal interlinear translation, and the forms are described roughly and inadequately in the numbered notes. I make no attempt to give detailed syntactic, phonetic, or lexical explanations, which of course would run into a miniature grammar if I had the knowledge to write one. In the Malecite version, commas and periods mark intonational breaks, which seem to correspond to syntactic breaks. Semicolons and periods in the English translation are matched respectively with Malecite commas and periods, with English commas introduced to help make the translation more comprehensible. Lettered paragraphs are at present little more than convenient divisions based on sense, and the notes are interspersed between these paragraphs, so far as they go. A number of notes are given, as well as cross-references, for the first portion of the text, and the translation alone is allowed to carry the latter portion.

Abbreviations used in the notes are spelled out in parentheses at their first occurrence. In the English translations square brackets [] are used to enclose material which does not directly correspond to Malecite expressions, and parentheses surround explanatory material.

Fire Demon (Peter Paul)

a. nekw¹ nisowək² skitapíyək,³ nacikwiləwəlohkaníya.⁴

Once two men; they went to look for work. They went

eləmíkawətihtit⁵ maləmte, piskiyensówək.⁶

along away, [and] finally; they were overtaken by darkness.

¹ Adverbial form of numeral one, occurring in this use and in abstract counting. Otherwise peskw(ən), used in counting animate (inanimate) objects, and kot-, e.g., in kotatkw '100.'

² Animate (an.) plural (pl.). The inanimate (inan.) pl. is nísənol.

³ An. pl. of skítap, with thematic final (thm.) -iy. Cf., wítap 'companion,' note 46 below.

⁴ naci- 'going,' kwilawəlohk- 'look for work,' -an thm., -iya third person (3) pl. inflectional suffix (infl.; see note 48).

⁵ eləmi- changed form of aləmi- 'away,' kowət- 'go along,' -ihtit 3 pl. infl.

⁶ pisk- 'be dark' (cf., piskiye 'it is dark'), piskiyens- 'be overtaken by darkness,' -ow thm., -ək an. pl.

b. e nit⁷ nəmíhtoniya,⁸ kanikohosíkəwam.⁹ nit¹⁰
And that, they saw it; [an] old barn. That, they went
naciktəkoníniya.¹¹
[in] to spend the night.

⁷ Inan. demonstrative (dem.), paired with an. nəht.

⁸ nəm- 'see' (cf., wnəmiyal 'he sees him'), -ihton thm., -iya 3 pl. infl. (cf., note 4, and see note 48).

⁹ kani- 'old,' kohos- 'cow' (< English cows), -ikəwam 'dwelling.'

¹⁰ Vide (v.) note 7.

¹¹ naci- v. 4, ktəkon- 'spend the night' (unprefixed form), -in thm., -iya v. 4. For the prefixed form, cf., nkətkon 'I spend the night,' and also note the similar alternation in psənəmən 'if you get it' vs. nməsənəmən 'I get it.'

c. eləmitpohkiwik¹² woht¹³ peskw¹⁴ tóktehsik¹⁵ psiw yot¹⁶ psənáthowe¹⁷
Along in the night, this one, he suddenly awoke, all this,
kohosíkəwam.¹⁸ manəmíhtowən¹⁹ tama, tama táthowe.²⁰
it was all illuminated, barn. He did not see it where; where it was lit.

¹² eləmi- v. 5, -tpohk 'night' (cf., kocítphk 'one night,' -iw thm., -ik locative suffix (loc.). The thm. is apparently a punctual: cf., eləmitpohkak 'during the night.'

¹³ An. dem., paired with inan. yot (cf., 7 and 16).

¹⁴ V. 1.

¹⁵ toktehs: 'to awaken suddenly' (cf., tohkiye 'he wakes up'), -ik 3 singular (sg.) an. conjunct (conj.) infl.

¹⁶ V. 13.

¹⁷ psənath- 'be all illuminated,' -ow v. 6, -e 3 sg. infl.

¹⁸ V. 9.

¹⁹ Cf., 8 for stem. ma- negative (neg.), -ihtowən neg. thm. (cf., thm. in 8 but also v. 48).

²⁰ t-neutral initial stem, -ath- 'be illuminated,' -owe v. 17.

d. nanákios səláhkiw²¹ woht²² skwət sahkinotáhak²³ woht peskos²⁴ wtónək.²⁵
After a while, all at once this, fire, it came in sight, this one, from his mouth.

²¹ Cf., the -iw of this form with that of 12.

²² V. 13. Here refers to one of the men, not to the fire ('fire' is inan.).

²³ sahki- 'in view,' not- 'come out' (cf., notéhe 'he comes out'), -ahak thm. and 3 sg. infl.

²⁴ 'One person.' Cf., 1.

²⁵ w- 'his,' -ton 'mouth,' -ek loc. (cf., 12).

e. waliw²⁶ yot²⁷ ewepíye²⁸ celi yot cəcíhtehsən,²⁹ éwebiw.³⁰
Right then, this, it went up, even this, it struck a glancing blow; above.

²⁶ V. 21.

²⁷ V. 13. Refers to the fire, which was in the form of a fireball.

²⁸ ewep- 'be up' (cf., 30), -iy v. 3, -e v. 17.

²⁹ cəcítehs- 'strike a glancing blow' (cf., 35), -ən ending of uncertain status, probably narrative (v. 48).

³⁰ Cf., 28.

f. nit apc kekesk pənakwíye.³¹ apc yet³² nəməcínikhakənok.³³
That again a little, it dipped down. Again over there, on
nit³⁴ apc etəlicəcohtéhsək.³⁵
the wall. That again, there it struck head on.

³¹ pənek- 'dip down,' -iy v. 3, -e v. 28.

³² Farther inan. dem., paired with an. yat (cf., 7 and 13).

³³ -ok loc. (cf., 12, 25).

³⁴ The reference is said to be to the wall.

³⁵ etəli- 'there,' cəcohtéhs- 'strike head on' (cf., 29), -ək conj. infl.

g. cəte wíwniye³⁶ wíwniye psiw. təhkiw emehkew peciyək³⁷
There it went around and around, everywhere. Until below,

əte nit eləmaləkak³⁸ nit wecinotéhsik.³⁹
when it came there, that, at a hole, that [is] where it went out.

³⁶ Cf., wíwniw 'around' and comparable forms cited in 28.

³⁷ pec- 'come,' -iy v. 3, -ək inan. conj. infl. (cf., 35).

³⁸ -ak loc. (cf., 12, 25, 33).

³⁹ weci- 'where,' not- v. 23, -ehs thm. 'suddenly' (possibly cf., 35), -ik inan. conj. infl. (cf., 35, 37).

h. wtəlapətəman.⁴⁰ malənte nəmihon⁴¹ eləmpápkiyak,⁴²
He looked at it. Finally he saw it, it went down away;

áwhtik.⁴³ malənte ələmiyakəwáthowetek.⁴⁴
on the road. Finally the light went away out of sight.

⁴⁰ w- 'he,' təlap- prefixed form of lap- 'look at,' -ətəman thm. of transitive inanimate verb, -ø infl.

⁴¹ V. 8, 19 for stem and thm., -ø 3 sg. infl.

⁴² eləmi- v. 5, papk- 'go down,' -iy v. 3, -ak conj. infl. (cf., 35, 37, 39).

⁴³ -ik loc., as 12.

⁴⁴ ələmi- 'away' (v. 5), -y- connective (conn.), akəw- 'go out of sight,' -ath 'be illuminated' (v. 17, 20),
-ow v. 17, -et additional thm., -ek inan. conj. (cf., 35, 37, 39, 42).

i. an⁴⁵ yotəl⁴⁶ wítapiyə⁴⁷ powaskahpólan.⁴⁸
And his-him companion-him, he shook him.

matekisitohkeláwiəl.⁴⁹ milélal⁵⁰ malənte
He finally could not awaken him. He did variously with him, finally,

kisiktəkwipónal.⁵¹
finally he turned him on his face.

⁴⁵ Cf., en, first word in b. above, and n in n., all of which are conjunctions with the same connective sense.

⁴⁶ yot- an. dem., -əl obviative (obv.). Cf., 13; yot- serves as obv. stem for both an. and inan. I here adopt Peter Paul's neat translation-device for the obv.

⁴⁷ wítap 'companion,' (cf., skídap 'man,' 3), -iy v. 3, -əl obv. (cf., 46).

⁴⁸ powaskahpol- 'shake,' -an thm and infl. It appears that some endings with -n (including this, that in 29, and possibly 19) represent a narrative tense, the -n forms being used where 3 acts on 3: normal transitive animate form here would be wpowaskahpólal. There may be a 3 pl. narrative tense ending in 4, 8, 11, since the normal animate intransitive ending in these cases would be -iyək, not -iya.

⁴⁹ mate- neg., kisi- 'finally,' tohkel- 'awaken' (cf., 15), -awíəl neg. thm. and infl. (cf., tohkélal 'he awakens him').

⁵⁰ -al infl., 3 acts on 3 (cf., 48).

⁵¹ kisi- v. 49, -al infl. (v. 50). Stem related to that of 11?

j. malənte apc nit, sipkiwos əte, səlakiw əte
Finally again that; after a while there; all at once there,
sakhiyapatáthowek⁵² yot kékw.⁵³ eləmpáp kawhtəhsək.⁵⁴
the light came back in view, this what. That which went down the road.

⁵² sakhi- v. 23, -y- conn. (cf., 44), apat- 'return,' -athowek v. 44.

⁵³ Interrogative-indefinite pronoun, here indefinite 'whatever-it-was.'

⁵⁴ Nominalized (conj.) form; for main elements v. 42-43, -ək v. 35, 37.

k. nit apc elehsik nit apc ciksehe wecinotəhákpən.
That again it did the same, that again it came in the way it went out.
woht, pohkámiskip yotəl, nit pekáhsək.
This one; the nape of the neck, his-him; that, it dropped there.

l. apc ewepíye, apc wíwniye.
Again it went up; again it went around; all [around and

psiw lámikəwam. nit apc yot pénekwiok,
 about] the inside of the dwelling. That again, this, it fell
 apc woht wóniakənək woht macephóan.
 down; again this one, on the head, this one, he ran away.
 pocikhasik, nit épit.⁵⁵
 In the corner; that, he sat.

⁵⁵ This ending and subsequent ones in -t represent the an. conj.

m. apc yot yálie skwét. səlahkiw elitəhaséhsit
 Again this, it went around, fire. All at once he thought,
 kamət woht iwók.⁵⁶ wəliponók.
 "I'd better, this one, do such-and-such. Turn him right (face up)."

⁵⁶ The stem of this expression is used for both dem. and verb to indicate that the speaker has not yet in mind just what he is going to say.

n. en ehta woht təlíksihkan, kwen yot mecéwepiweyik
 And then this one, he ran to him; while this was up again,
 skwét. n tíwan soskwipónan. ketəlte
 fire. And he did it to him, he laid him face up. Sure enough
 yot pénekwiok apc wəliw wtónək ələmipiséhsowe.
 this, it fell down again, right away in his mouth, it went in and away.

o. nit ena nanákiyos, tóhkiyan wóht. a nit.
 That and, in a while; he woke, this one. And that;
 takənotəmakon. tiol nocipápmi. elikawtiəkw.
 the other told him. He said, "I was down there. Where we are going.
 otenesis nit etótək. kətipənəmənən lohkwákən.
 The village that, it is that far. Where we will get it, work."

p. psiw nəhka akəmotəməwan, yot peciw elinákwək əci yot,
 All about it he told him; that even how it looked, where
 petkawətihtit sepáwnok.
 this; where they were going, the next day.

q. nit ena wəspəsahkiwik macékwətihtit papek əte elinákwək
 That and next morning they started going, identical there
 nemíhtəhtit, oten.
 how it looked, what they saw; town.

NOTES

¹ It is entirely appropriate here to record my gratitude to the National Museum of Canada which, through Don DeBlois, has been instrumental in aiding my work.

² These are not official census figures, which I have not yet had a chance to obtain, but rather they reflect my impressions combined with those of various informants. The population order is correct, at any rate: the Sol Tax map of 1950 distribution of The North American Indians gives, for the six reserves in order: Edmundston 48, Tobique 375, Woodstock 144, Kingsclear no figure, Fredericton 154, Oromocto 63. The map shows an additional scattered population of 370.

³ The Tax map (fn. 2) gives a population figure of 700 for Perry and Princeton together. For Old Town it lists "Penobscot 623," but in fact most of these are Passamaquoddy.

⁴ No doubt this is the typological feature which accounts for Bloomfield's frequently cited impression of similarity between Algonquian and Indo-European.

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